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Volume 6 Number 2

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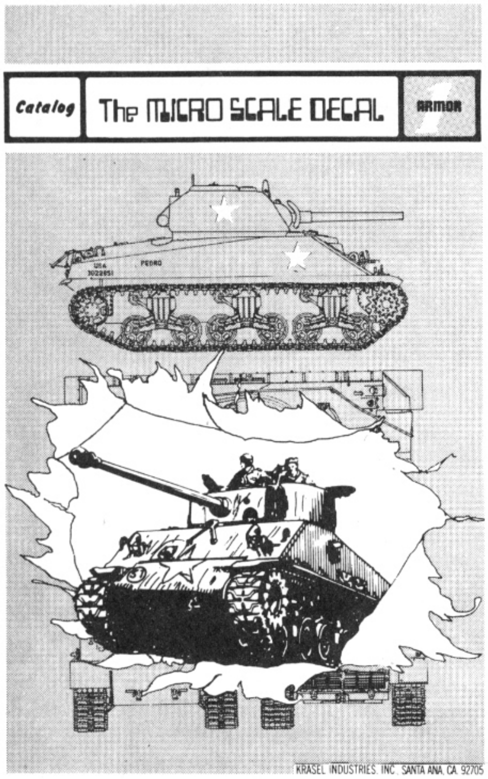
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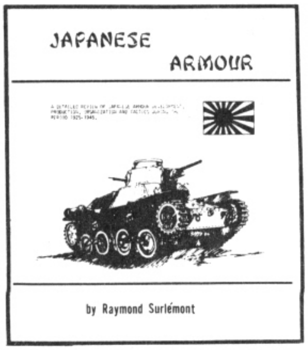
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# Muzzle Blast

## LETTERS • COMMENTS • NOTES • CORRECTIONS • ADDITIONS

### COMMENTS ON 'COLOR 'N CAMOUFLAGE',...

Dear Sir:

I would like to make a few comments in regard to the *'Color 'n Camouflage'* article in Volume 6, Number 1 on the West German *Leopard* Tank.

While in West Germany this summer, I had the opportunity to see a good many *Bundeswehr* armored vehicles, including quite a few *Leopards, Marder* APC's, etc. I noticed that the paint schemes on most of these AFV's is much closer to U.S. Olive Drab than the standard *Bundeswehr* Green-Grey. This varies from unit to unit though. As far as markings go, I observed that the three-digit turret number on the *Leopard* is sometimes not applied, so that only the Maltese cross is present. At one point, I saw two *Leopards* of the same unit parked side by side, one with the three-digit number and one without it. Another marking I noticed on a few *Bundeswehr* AFV's was a yellow edge on every eighth track link. Obviously, there is a certain degree of variety in terms of color schemes and markings, even in the West German Army.

I hope that these comments have been of some assistance. I thought that the article was quite interesting, and hope that you will do more such articles on NATO armor, and posibly some on Eastern European/Warsaw Pact AFV's.

Sincerely,

Charles B. Perkins
Hamden, Conn.

### ...ON SOUTH VIETNAMESE ARMOR,...

Dear Sirs:

I spent many hours flying as a crew chief in Vietnam based at Lai Khe, north of Saigon (Ho Chi Minh City), after the 'Big Red One' (the 1st Inf. Div.) was shipped back to the world, our base was partly used by the 5th ARVN Airborne Div. (this was just before the Cambodian incursion of 1970). On take off from our hot-refuel pad, we usually flew over two South Vietnamese M-41 'Bulldogs', I don't know if they were still usable or what, but I never saw any activity around them. We never flew close enough to them to read serial numbers, but I do remember the grosser marking details. They were both painted in a two-tone wavy pattern overall; the two colors were faded black and U.S. type olive green (O.D.). The black appeared to be sprayed over the O.D. and the edge was feathery. Both sides of the turret carried a South Vietnamese flag — a yellow rectangle (about 12 x 18 inches) with three small red stripes running horizontal. The fenders (both left and right — front and rear) had a yellow stripe about 4" high and the width of the fender that had the unit codes painted on them in black. I couldn't read these codes but they were probably similar to those used by our own units. This marking was in the same position as would be found on our tanks. I don't know if these two tanks were typical of ARVN armor but I hope this helps someone.

Pete Harlem
Miami, Florida

### ...ON THE ISRAELI CHARIOT,...

Dear Editor,

The October number of *Military Review* contained a good quality photograph of the Israeli *Chariot* MBT from which many details of this interesting and hitherto secret vehicle can be discerned. Most unusual is the *Chariot's* front mounted engine; the long, almost horizontal, upper glascis plate is bulged on its right side to accomodate the power-plant whilst the drive is crammed over to the left side of the hull beside it. An earlier report in *Jane's Weapons Systems* indicated this is the same 790 h.p. Telidyne Diesel used in other Israeli front-line MBTs.

Also familiar is the *Chariot's* L7 105mm main gun, though the gun tube is now fitted with a thermal sleeve. Both turret and hull appear to be constructed of rolled plate, opening the possibility these are produced entirely in Israel. Earlier speculation had been that turret castings would be obtained from the U.S. The turret shape is odd in that, apparently in order to obtain a narrow frontal silhouette, its side walls are almost vertical. The gun mantlet has also been done away with, replaced by an internal splash shield as in Soviet MBTs, and giving the front of the long turret a very pointed effect. Two hatches top the turret, the right side one being a proper cupola and fitted with a remotely controlled machine gun of about 7.62mm size.

Little can be seen of the supension since side skirts are fitted but there are six road wheels per side and these look as though they might be interchangeable with *Centurion* road wheels. In over all height and size the *Chariot* is normal by western standards and the report that it carries sixty main gun rounds is believable; the Israelis don't appear to have adopted the Soviet Practice of sacrificing stowage space and crew comfort for a compact shape

Sources vary as to the *Chariot's* weight, one giving it as forty long tons and another as fifty-six tons. All reports, though, have mentioned the possibility that the tank has a rear compartment for carrying about six infantrymen. If, in light of their battle experience, the Israelis are willing to pay the penalty of extra bulk and weight for this feature, then it will be interesting to see the effect on other nations MBT designs. Certainly, whether all the rumours about it are true or not, the *Chariot* is one of the most interesting

Continued on Page 48

### COVER ILLUSTRATIONS

**Front Cover:** Shortly after the end of World War II., U.S. Army units withdrew from their forward positions to permit the setting-up of the boundary between East and West Germany. This photo shows two Soviet T34/76 tanks moving into Leipzig, Germany, relieving elements of the U.S. Seventh Army. In the background is the Hotel Astoria, once one of the best hotels in Leipzig. Many Soviet tank units were still equipped with 76mm gun versions of the T34 at war's end, despite the fact that the T34/85 had been in production since 1943. Credit: U.S. Army

**Rear Cover:** South Korean armor on the march... Shown passing an armor column of the U.S. Army's 1/72nd Armor (with M60A1 medium tanks) on the right, this M47 medium tank shows typical South Korean camouflage. The lighter color is light tan/earth brown and the darker shade is Korean olive drab (slightly more bluish-green than U.S. paint). Note the driving lights and the use of goggles by the Korean crew. Photo Credit: CPT Russ Vaughan, U.S. Army

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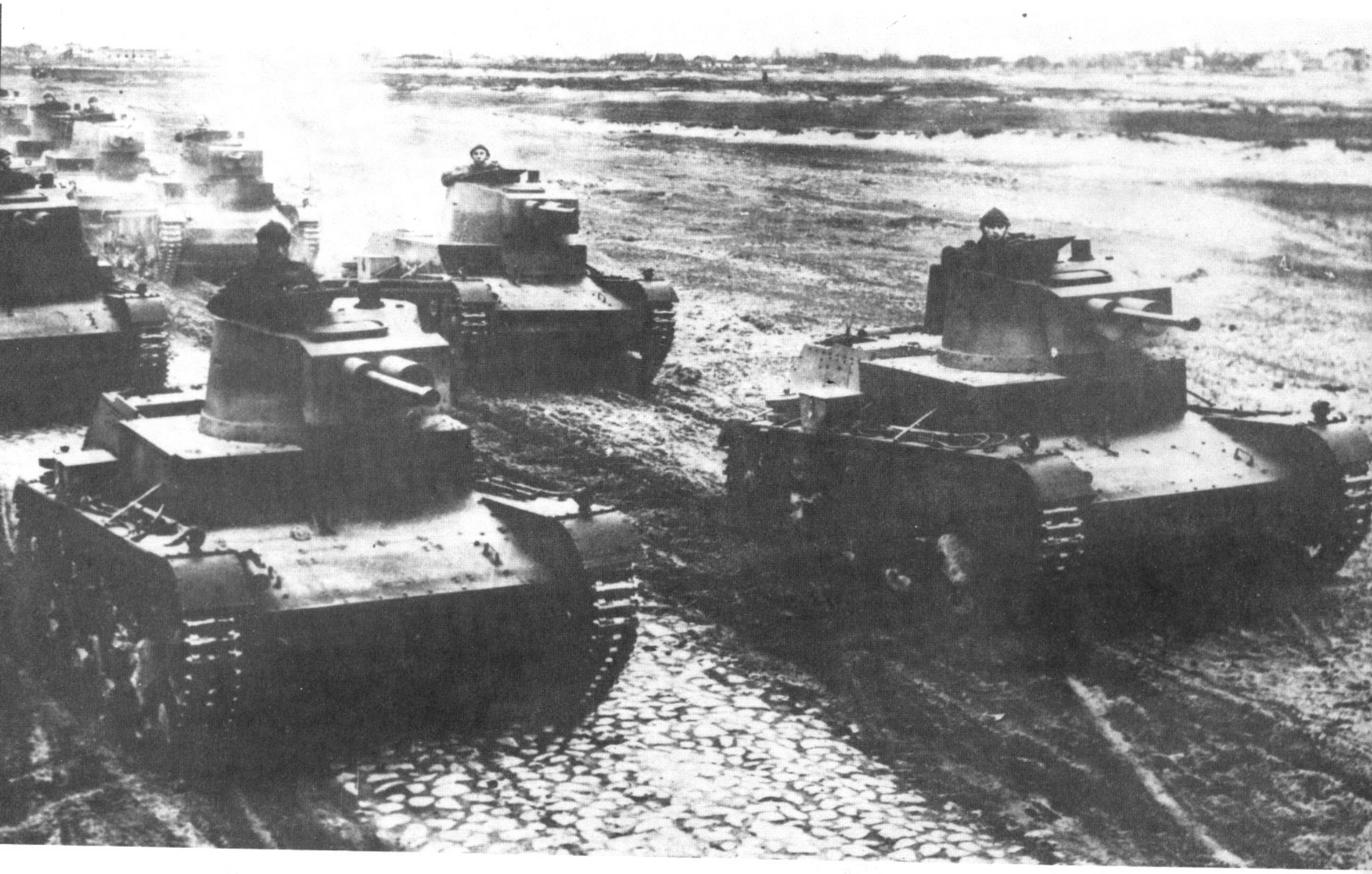


# THE ORGANIZATION & DISPOSITION OF
# The Polish Armored Force
## IN 1939

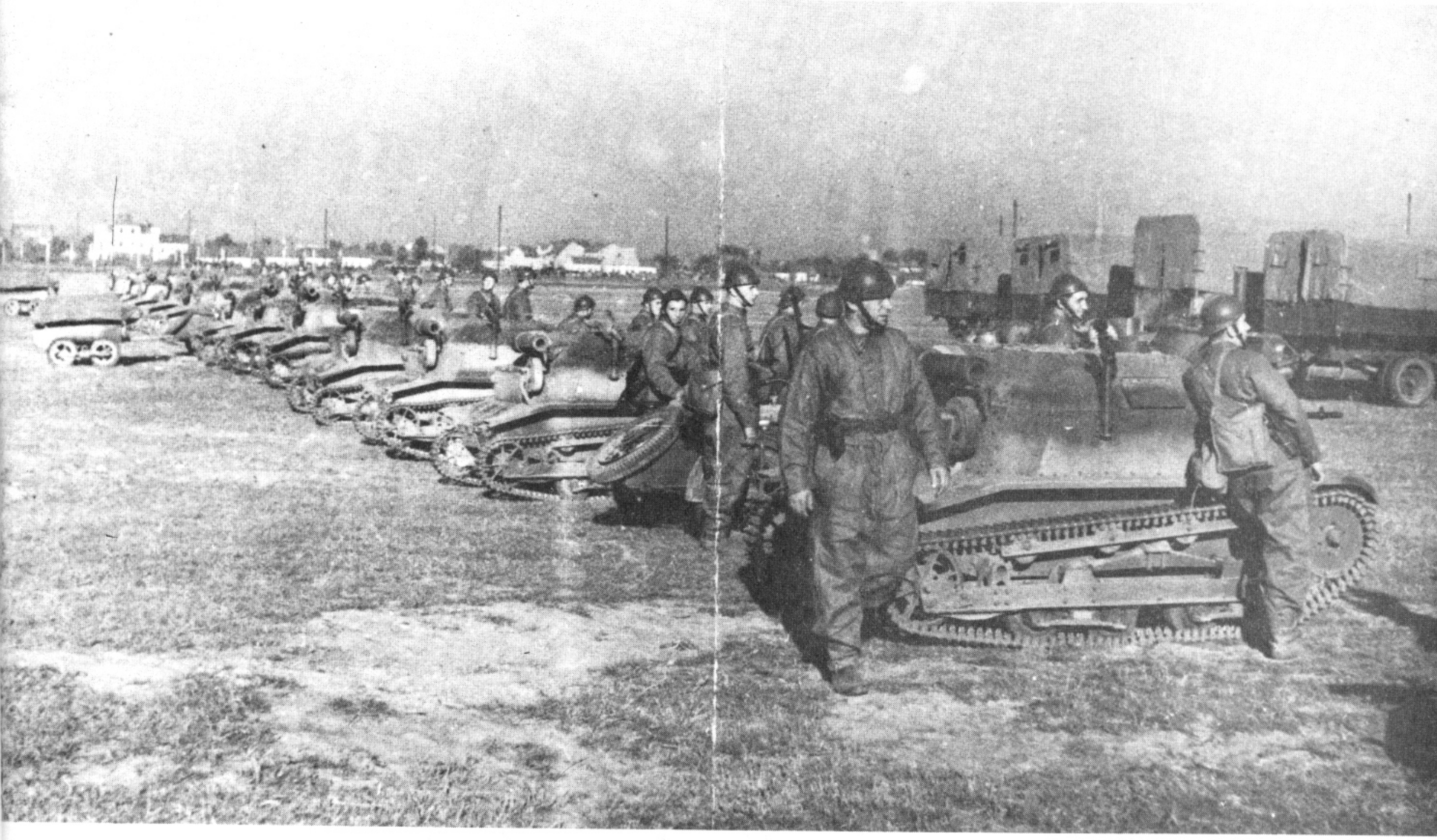
### by Steven Zaloga

In May, 1930, the Polish War Ministry reformed the armored force (*Bron Pancerna*) as an independent branch of the armed forces. Previously, all tank units had been subordinated to the infantry, armored cars to the cavalry, and armored trains to the artillery. The change was more administrative than substantive in nature. Polish strategic doctrine foresaw no independent role for the armored force in combat and continued to relegate it to supportive services. The cavalry in its modern guise of mounted infantry was seen as the principal mobile force of the Army.

The reasons for this doctrine are not hard to trace. To a large extent, Polish mechanized doctrine echoed French doctrine. The French had played a prominent role in the formation of the first Polish armored formations and French staff officers served as teachers in Polish military schools well into the 1920's. The French saw tanks as supportive tools of the infantry with neither the speed nor mechanical reliability to be called upon to engage in a decisive penetrative strike or raid. While much of other French strategic thinking was called into question by the personal experiences of Polish officers in the fluid 1920 Russo-Polish War, French mechanized doctrine posed no such stumbling block. Polish experience in 1920 with armored units did little to contradict French views aside from a few mechanized raids which had been largely forgotten by Plish military planners. These views were further cemented into place by peacetime experience with armored vehicles.

The mediocre cross country ability, slow speed and mechanical unreliability of the Renault *M.17 FT*, which made up the bulk of the *Bron Pancerna* until 1933-34, was hardly conducive to the generation of notions of independent mobile armored formations. The tiny TK tankettes which succeeded them in service were little better. The TK series was enormously useful in acquainting Poland's nascent heavy industries with modern manufacturing techniques, and was equally useful to the Army in training drivers and skilled mechanics. But the limited technical capabilities of these vehicles blinded Polish strategic thinkers to the potential offered by the real tanks which were beginning to enter service in the major European armies in the mid-1930's. In 1930, the notions of Fuller, Martel and Liddell Hart were imaginative but premature since they lacked the technical means for their realization. By 1935, though, these dreams could be trans-

*Photo, above: A group of* lekki czolg 7 TP jw *of the* 1. batalion czolgow lekkich *on manuevers outside of Warsaw immediately before the war.* (*Author's collection*)



*Photo, above: A company of TKS tankettes from an unidentified unit at the outskirts of Warsaw on 16 September, 1939, preparing to move out. In the background are the* Polski-Fiat 621 *trucks of the company's supply section and in the distance, the* TKS *supply trailers are also evident.* (*Courtesy of Peter Chamberlain*)

formed into reality by the new generation of vehicles coming onto the scene such as the Swedish *L-60*, the German *Pzkw. I.*, the American Christie and the British 6-ton. Polish military doctrine, like the doctrine in most other European countries at the time, did not keep pace with this technical progress and remained inhibited by the conservative tendencies of French World War I. experience.

While Polish military docrine stagnated, Polish military procurement did not. In 1939, the *KSUS* rearmament commission recommended the complete reequipment of the *Bron Pancerna* in 6 years. The existing force of *M.17 FT*'s and *TK/TKS* tankettes was to be replaced by a larger force made up of the new *4TP*, *7TP* and *10TP* tanks. The program was overly ambitious, given Poland's rather modest industrial capabilities, and only a small fraction of the plan was completed by 1939. Nevertheless, it changed the character of the *Bron Pancerna* and gave it a measure of a real sting.

On the eve of the war, the *Bron Pancerna* had about a thousand AFV's ranging from the worn-out and obsolete *M.17 FT*'s to the latest uparmored *7TPjw wz.1939*'s. These vehicles were maintained in three levels. A portion were used for training purposes and were not mobilized due to their worn out condition. This amounted to about 150-200 vehicles. The remaining vehicles were kept either as 'A' reserve in mint condition, or as 'exercise' vehicles which were given only limited work-outs in peacetime. These last two categories when mobilized amounted to about 710 AFV's not counting the 10 armored trains and the 80 or so tanks attached to the trains for rail patrol and security work.

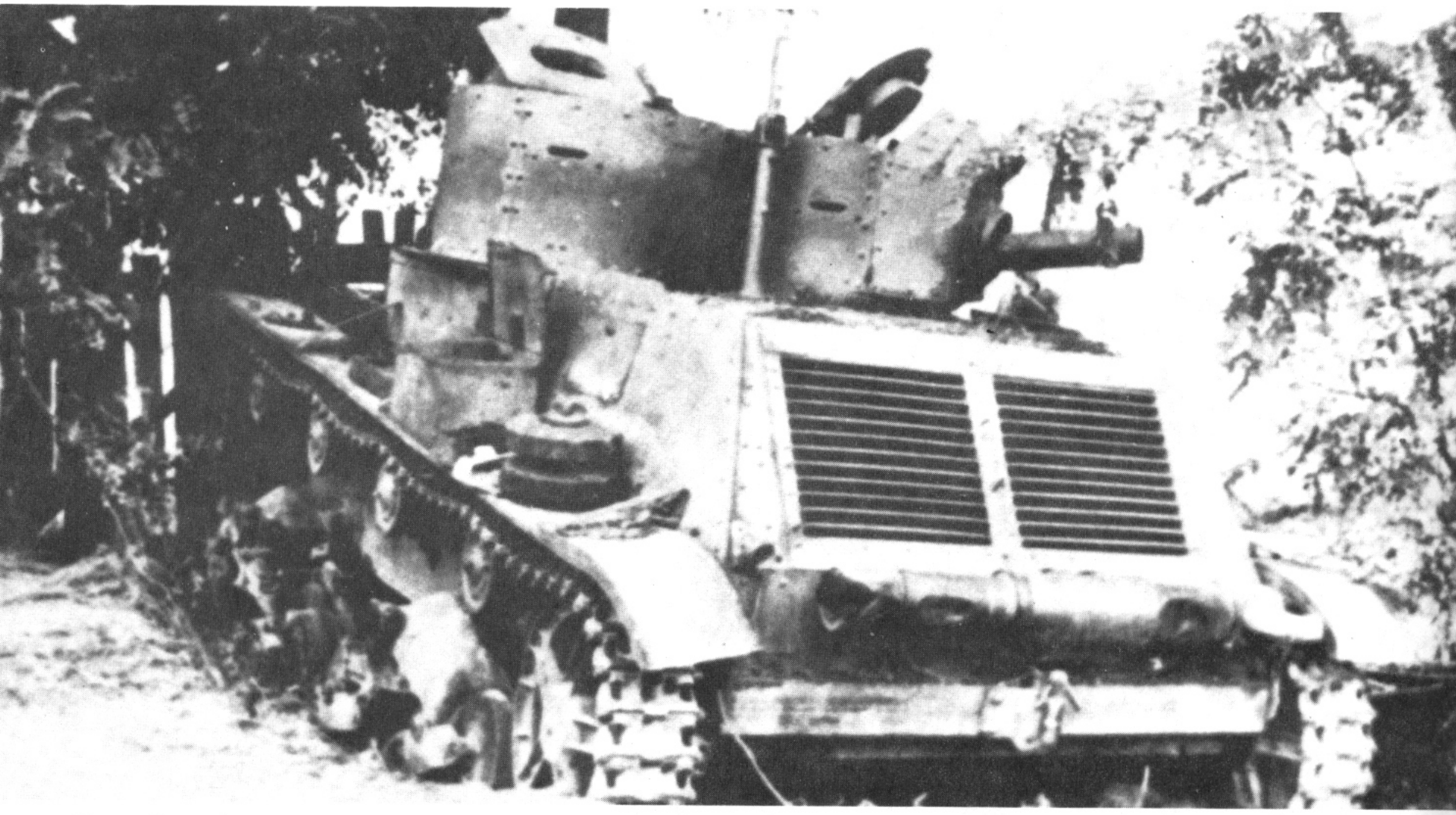
During peacetime, tanks were attached to eleven Armored Battalions (*battalion pancerny*) for training and maintenance. These battalions were administrative units and had no relation to actual combat formations. Upon mobilization, these battalions were brokne up into their component military units.

Light tanks, aside from those attached to the two mechanized brigades, were formed into light tank battalions and were put at the disposition of the High Command to be used as the situation required. On 1 September 1939, there were two battalions of *7TP jw*'s and one battalion of *R-35*'s. A *7TP* battalion differed in detail from an *R-35* battalion, consisting of a headquarters company with a command tank, communications platoon, special platoon, heavy AA machine gun platoon and a battalion quartermaster. The battalion had three companies of tanks, each with a comand tank, three platoons of five tanks each, a repair section with heavy trucks and two *C7P* tractors and a supply squad. The battalion's technical company had a technical platoon, supply platoon, fuel platoon and engineers, and the unit's total strength was 49 *7TP jw* light tanks, 7 *Polski-Fiat 508 'Lazik'* personnel cars, 3 *Laziks* with *RKD* radios, 9 *Polski-Fiat 621-L* heavy trucks with workshops, 6 *C7P* tractors, fuel trailers and a field kitchen.

An *R-35* Battalion had a headquarters company with a staff, special platoon, AA platoon with 4 heavy machine guns and quartermaster platoon, totalling 7 officers, 99 NCO's and EM's. There were three tank companies, each with a command tank, four platoons each with three tanks, and a technical squad, for a total of 5 officers, 52 NCO's and EM's and 13 tanks per company. The technical company had reserve crews and tanks, a technical platoon, and a supply platoon for a total of 3 officers, 120 NCO's and EM's, 6 tanks and two heavy machine guns. The battalion's total strength was 25 officers, 375 NCO's and EM's, 45 tanks, and a similar component of trucks, but which were of French manufacture.

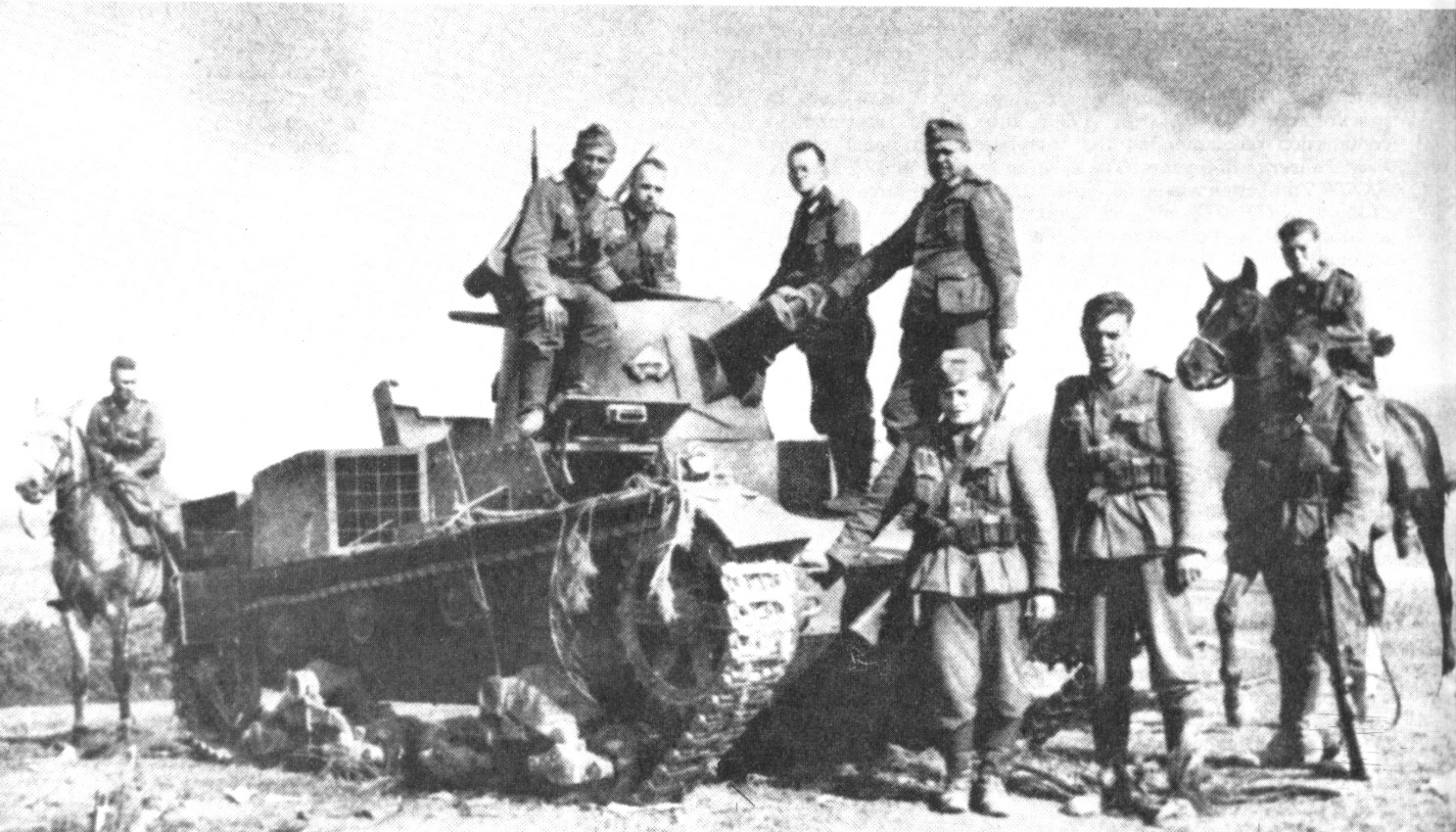
Each of the three *M.17 FT* companies had 15 to 16 tanks, but these were held back from combat due to their obvious obsolescence.

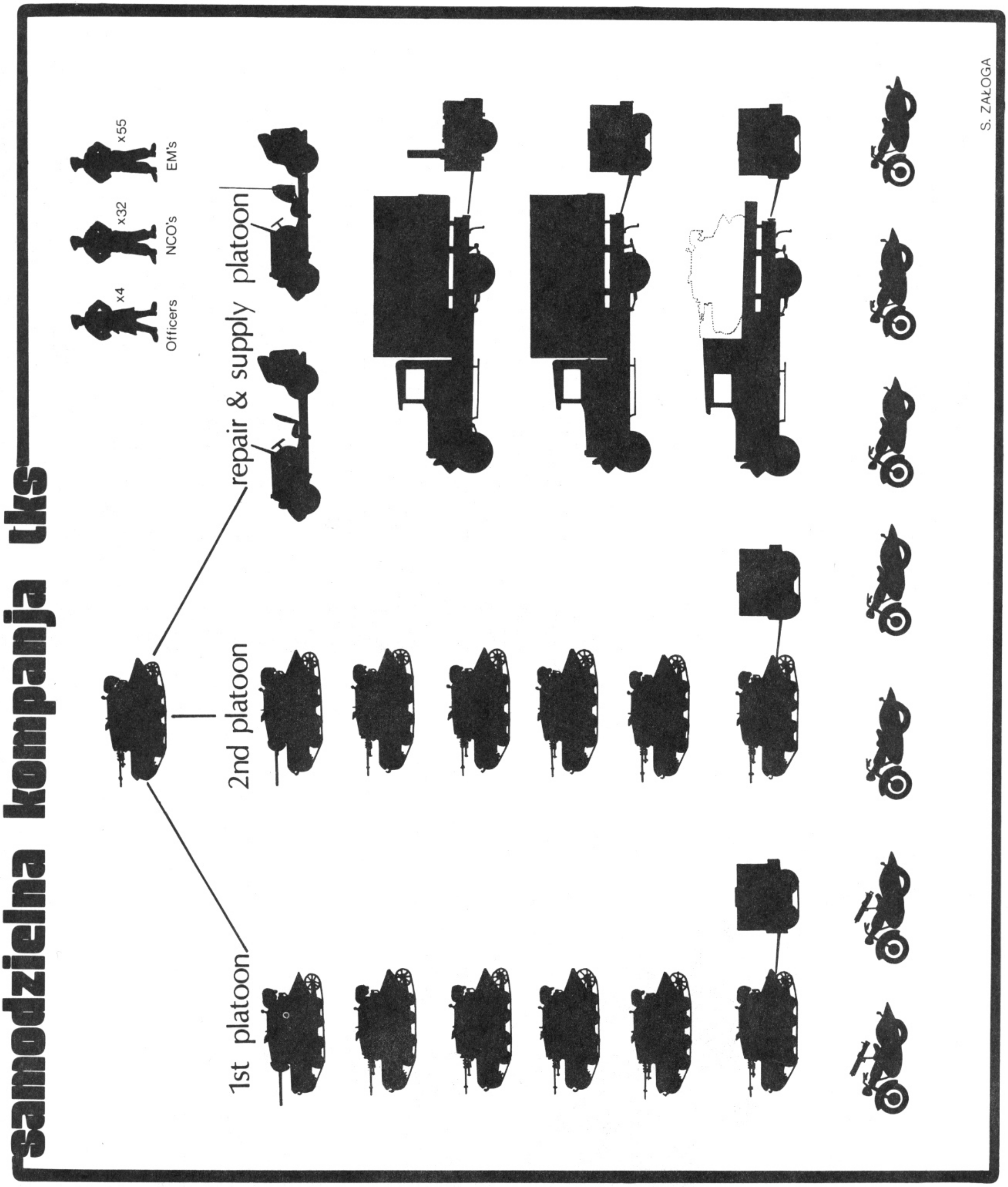
There were two types of tankette units, one for cavalry



*Photo, above: A rear view of a* lekki czolg 7 TP dw *from the improvised company of Capt. F. Michalowski formed from tanks of the* CWBP *training school, knocked-out in the outskirts of Warsaw. This view clearly shows the vehicle's twin turrets as well as the mounting post for an AA machine gun between the two turrets.* (*National Archives*)

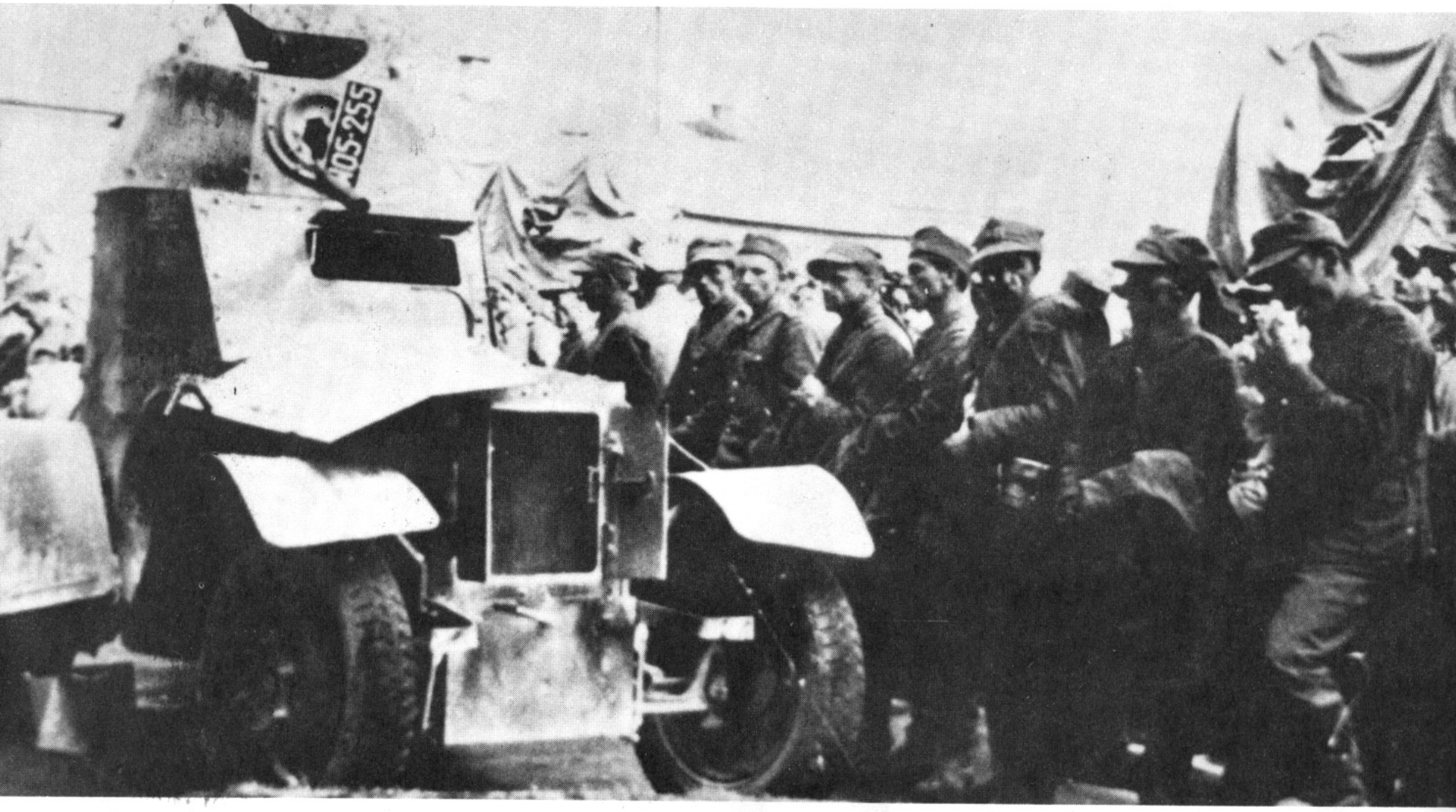
*Photo, below: A* czolg lekki VAU-33 *abandoned by the* Warszawa Brygada Pancerna-Motorowa *after the battle at Tomaszow Lubelski on 18 September, 1939 being inspected by a German mounted unit. The* VAU-33 *was a Polish-modified version of the British 6-ton Vickers tanks.* (*Author's collection*)





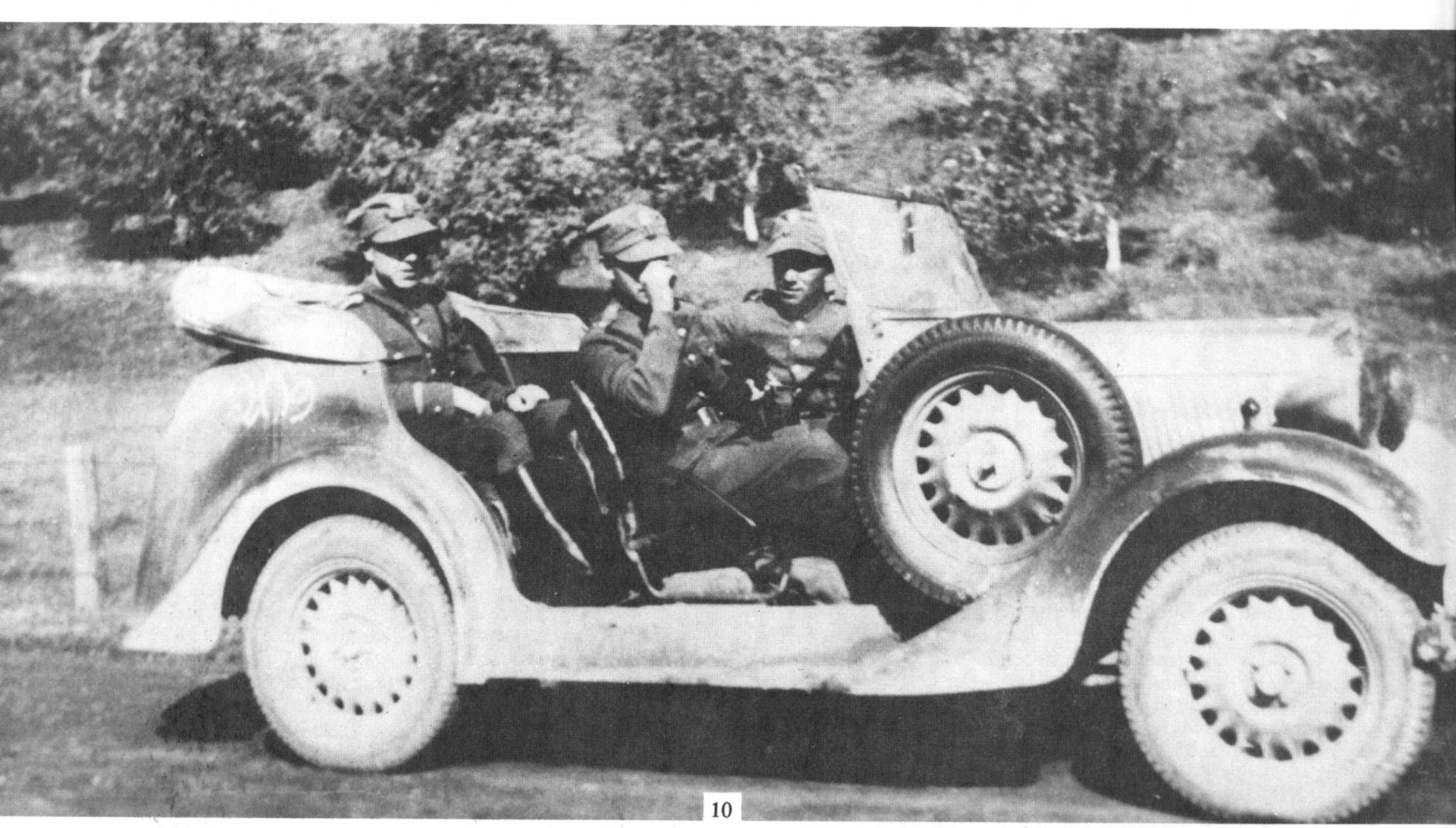
support, the other for infantry support. All eleven cavalry brigades had an organic armored scout group (*dywizjon pancerny*) with a squadron of armored cars and a squadron of tankettes. All these units used the *samochod pancerny wz.34* (Armored Car Model 1934) except for the *11dp* which used the *wz. 29*. Each *dywizjon pancerny* (*dp*) had a headquarters company with a command staff, MP squad, communications squad, anti-gas squad, technical and supply platoon, and a quartermaster, totaling 4 officers, 23 NCO's, 69 EM's, 2 reserve tanks and an armored car, 9 *CWS 1000* Sokol motorcycles, 19 *Polski-Fiat 621-L* heavy trucks, a *Lazik* with *RDK* radio, 3 fuel trailers, 2 *Laziks* and a field kitchen. The armored car squadron had a commander with a *Lazik* staff car, staff, 2 platoons with 3 armored cars each totaling 3 officers, 14 NCO's, 28 EM's, 7 armored cars, 3 heavy trucks, a radio car, 5 motorcycles, a fuel trailer, and a field kitchen. The tankette scouting squadron had a command tank, staff, 2 platoons with 5 tanks and a supply squad totaling 3 officers, 14 NCO's and 32 EM's, 11 tankettes, a Lazik staff car, 2 heavy trucks, a radio car, 5 motorcycles, a fuel trailer and a field kitchen.

The equipment of the infantry's Independent Scouting Tank Company (*samodzielna kompanja czolgow rozpoznawczych — 'sk'*) was somewhat more austere, consisting of a command tank and two platoons of six tanks for a total of four officers, 32 NCO's, 55 EM's, 13 tankettes, a *Lazik* staff car, a *Lazik* with *RKD* radio, a *Fiat 621 L* heavy truck, a *Fiat 621 L*



*Photo, above: A disabled* samochod pancerny wzor 34 *surrounded by a group of captured Polish cavlry troopers after the ill-fated Bzura River counter-offensive during the second week of the September Campaign. The* wz. 34 *was the standard armored car of the Polish armored force.* (*National Archives*)

*Photo, below: A* Polski-Fiat 508 *staff car, popularly called* 'Lazik', *which was the standard multi-purpose all-terrain vehicle of the Polish Army in 1939.* (*Courtesy of Andrew Zaremba*)



## DISPOSITION OF THE POLISH ARMORED FORCE ON 1 SEPTEMBER 1939

| Armored Unit | Equipment | Commander | Peacetime Disposition | Wartime Disposition | |
|---|---|---|---|---|---|
| | | | | Army Group | Division, Brigade or Operational Group |
| 11 dp | TKS | Maj. S. Majewski | CWBP | Modlin | Mazovian BK |
| 21 dp | TKS | Maj. S. Glinski | 12 BP | Lodz | Wolynian BK |
| 31 dp | TKS | Capt. B. Bledzki | 7 BP | Narew | Suwalki BK |
| 32 dp | TKS | Maj. S. Szostak | 7 BP | Narew | Podlaski BK |
| 33 dp | TKS | Capt. W. Lubienski | 7 BP | High Comd | Wilenski BK |
| 51 dp | TK | Maj. H. Swietlicki | 5 BP | Krakow | Krakowski BK |
| 61 dp | TKS | Capt. A. Wojcinski | 6 BP | Lodz | Kresow BK |
| 62 dp | TKS | Capt. Z. Brodowski | 6 BP | Poznan | Podolski BK |
| 71 dp | TKS* | Maj. K. Zolkiewicz | 1 BP | Poznan | Wielkopolski BK |
| 81 dp | TK* | Maj. F. Szystowski | 8 BP | Pomorze | Pomorska BK |
| 91 dp | TK | Maj. A. Sliwinski | 4 BP | Modlin | Nowogrodzki BK |
| 11 sk | TKS* | Lt. J. Pieniazek | CWBP | Lublin | WBP-M |
| 12 sk | TKS* | Capt. S. Letowski | CWBP | Lublin | WBP-M |
| 31 sk | TKS | Capt. M. Szalek | 7 BP | Poznan | 25 DP |
| 32 sk | TKS | Capt. F. Kazimierczak | 7 BP | Poznan | 10 DP |
| 41 sk | TK | Capt. I. Witanowski | 10 BP | Lodz | 30 DP |
| 42 sk | TK | Capt. M. Grabowski | 10 BP | Lodz | Kresow BK |
| 51 sk | TK | Capt. K. Poletyllo | 5 BP | Krakow | G.O. Bielsko |
| 52 sk | TK | Capt. P. Dubicki | 5 BP | Krakow | G.O. Slask |
| 61 sk | TKS | Capt. W. Czaplinski | 6 BP | Krakow | G.O. Slask |
| 62 sk | TKS | Capt. S. Szapkowski | 6 BP | Modlin | 20 DP |
| 63 sk | TKS | Lt. M. Kosiewicz | 6 BP | Modlin | 8 DP |
| 71 sk | TKS | Lt. S. Skibniewski | 1 BP | Poznan | 26 DP |
| 72 sk | TKS | Capt. L. Szczepankowski | 1 BP | Poznan | 14 DP |
| 81 sk | TK | Capt. F. Polkowski | 8 BP | Pomorze | 4 DP |
| 82 sk | TK | Capt. J. Wlodkowski | 8 BP | Pomorze | 26 DP |
| 91 sk | TK | Capt. S. Krainski | 4 BP | Lodz | 10 DP |
| 92 sk | TK | Capt. W. Iwanowski | 4 BP | Lodz | 10 DP |
| 101 sk | TKF* | Lt. Z. Ziemski | 2 BP | Krakow | 10 BK |
| 121 sk | TKS* | W.O.L. Pruszynski | 2 BP | Krakow | 10 BK |
| 1 bcl | 7 TP jw | Maj. A. Kubin | 3 BP | Prusy | High Command |
| 2 bcl | 7TP jw | Maj. El Karpow | 2 BP | Prusy | High Command |
| 21 bcl | R-35 | Maj. J. Lucki | 12 BP | Lublin | High Command |
| 111 kcl | M.17 FT | Capt. S. Wlodarski | 2 BP | Reserve | |
| 112 kcl | M.17 FT | Lt. W. Stoklas | 2 BP | Reserve | |
| 113 kcl | M.17 FT | Lt. J. Ostrowski | 2 BP | Reserve | |
| 12 kcl | VAU-33 | Capt. C. Blok | CWBP | Lublin | WBP-M |
| 121 kcl | VAU-33 | Lt. Raczkowski | 2 BP | Krakow | 10 BK |

## POLISH ARMORED TRAIN DISPOSITION ON 1 SEPTEMBER 1939

| ARMORED TRAIN | COMMANDER | PEACETIME DISPOSITION | WARTIME DISPOSITION | |
|---|---|---|---|---|
| | | | ARMY GROUP | DIVISION, Brigade, etc. |
| pp 11 Danuta | Capt. B. Korobowicz | 1 dpp | Poznan | 26 DP |
| pp 12 Poznanczyk | Capt. K. Maiewski | 1 dpp | Poznan | Wielkopolski BK |
| pp 13 Gen Sosnkowski | Capt. S. Mlodzianowski | 1 dpp | Modlin | High Command |
| pp 14 Paderewski | | 1 dpp | Modlin | High Command |
| pp 15 Smierc | Capt. K. Kubaszewski | 1 dpp | Modlin | High Command |
| pp 51 Marszalek | Capt. Z. Rokossowski | 2 dpp | Krakow | Army Group Comd |
| pp 52 Pilsudczyk | Capt. M. Gonczar | 2 dpp | Krakow | 30 DP |
| pp 53 Smialy | Capt. M. Malinowski | 2 dpp | Lodz | Wolynska BK |
| pp 54 Grozny | Capt. J. Rybczynski | 2 dpp | Krakow | G.O. Slask |
| pp 55 Bartosz Glowacki | Capt. J. Podgorski | 2 dpp | Prusy | G.O. Wyszkow |

*Text Continued from Page 9*

tank transporter, a *Fiat 621 L* workshop truck, seven DWS 1000 Sokol motorcycles with side-cars, 4 fuel trailers and one field kitchen. These companies (*sk*) were supposed to be attached to the infantry's 15 'screening' divisions, but in fact several were left under the control of Army Group commanders or local Operation Group commanders.

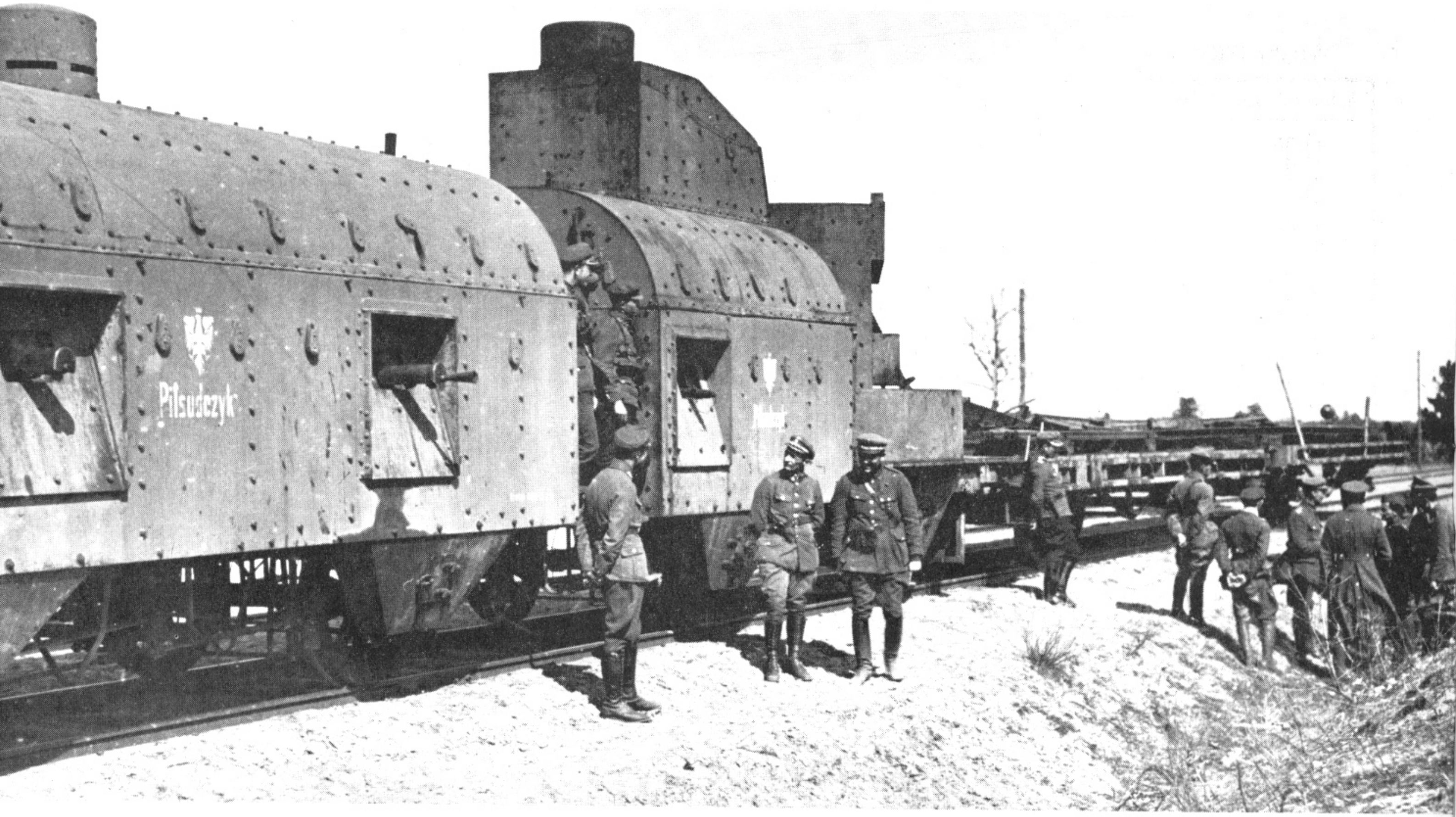
The largest Polish mechanized formations were the two new *Oddzial Motorowy*, the 10th Mechanized Brigade (formerly the 10th Cavalry Brigade or *10BK*) and the Warsaw Mechanized Brigade (*WBP-M*. These were the first of four restructured cavalry brigades foreseen under the 1936 *KSUS* plan. They were designed as defensive holding forces with a modest armored force and 2 motorized rifle regiments with supporting artillery. A lack of sufficient armored vehicles in 1939 made their armored complement even smaller than intended, amounting to only two companies of tankettes and a company of 16-17 *VAU-33* light tanks. The *WBP-M* was just in the midst of formation at the outbreak of the war and was not combat ready on 1 September 1939.

A full list of the Polish armored units mobilized on 1 September 1939 and their peacetime and wartime dispositions are listed above.

### GLOSSARY OF ABBREVIATIONS

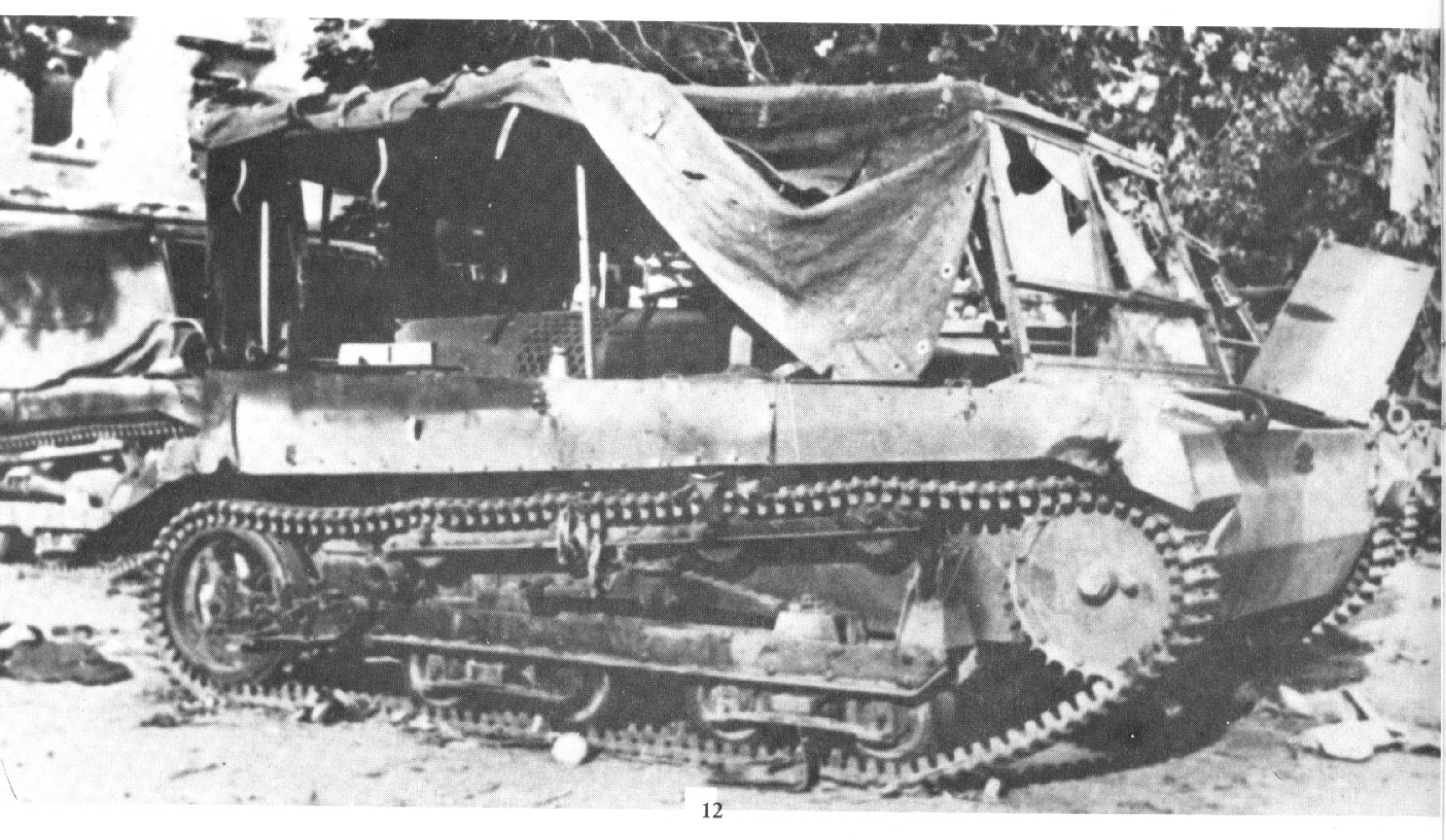
BK — *Brygada Kawaleria* (Cavalry Brigade)
BP — *Batalion Pancerny* (Armored Battalion)
bcl — *batalion czlogow lekkich* (Light Tank Battalion)
CWBP — Central Armored Training School in Warsaw
DP — *Dywizjon Piechoty* (Infantry Division)
dp — *dywizjon Pancerny* (Armored Group)
dpp — *dywizjon pociag pancerny* (Armored Train Group)

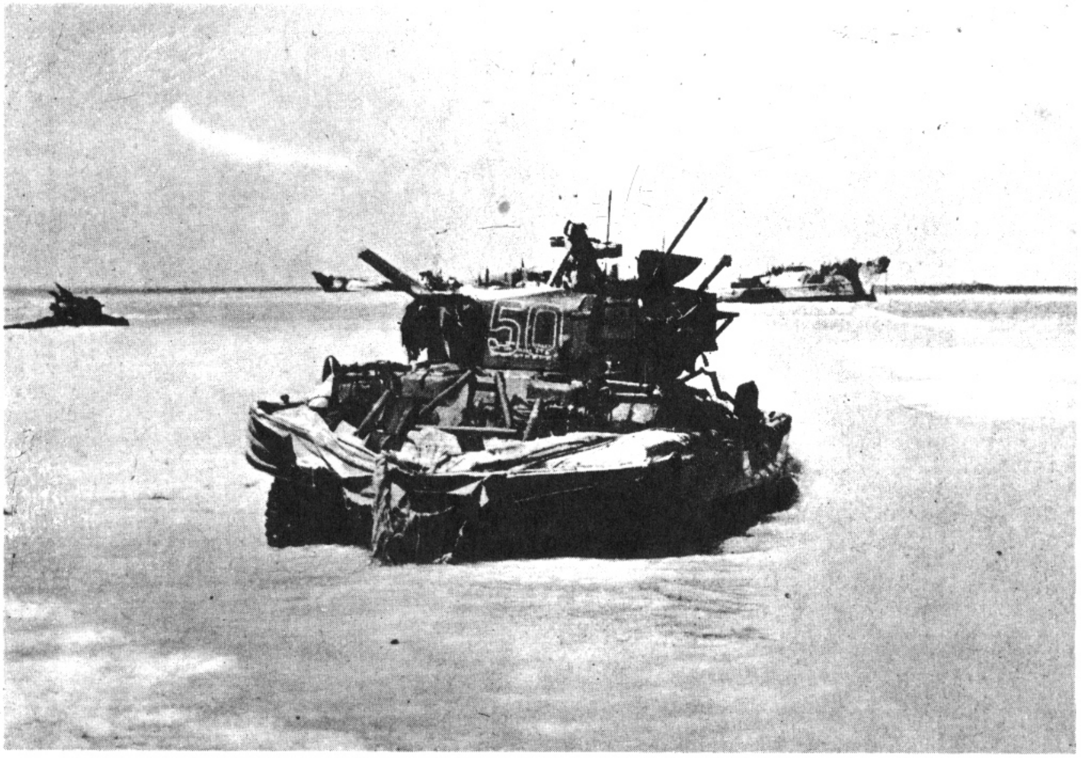
Continued on Page 44



*Photo, above:* Pociag Pancerny 52 Pilsudczyk *in the final phases of the Russo-Polish War of 1920. This armored train was subsequently modified and used again in 1939. (Author's Collection)*

*Photo, below: A disabled* ciagnek C2P *artillery tractor captured by the Germans in Warsaw. This utility vehicle was based on the* TKS-B *tankette and was used mainly by Bofors 40mm anti-aircraft units such as those attached to the* 10 BK *and* WBP-M. *(National Archives)*





# ‘FLOATER 5’

## DD TANKS AT NORMANDY

### by William E. Platz

The steel deck of the L.C.T. vibrated with the throb of the diesel engines as the craft, and the five Sherman DD’s it carried, neared the French coast. From his position at the stern of the landing craft, Major D. B. Wormald waited for the code word that would launch his squadron of amphibious tanks against Sword Beach. The whitecaps that lapped the side of the awkward craft and the 16-knot westerly wind blowing from his right now made such a launch doubtful. It was 0430 hours, June 6, 1944.

On board the flotilla flagship, Captain Bush, commanding Landing Craft Flotilla 14, conferred with Brigadier Prior-Palmer of the 27th Armored Brigade. The brigadier was well aware of what the wind and sea could do the frail and awkward DD’s. A few weeks previously, he had spent a most uncomfortable night stranded in the middle of Lake Fritton in a stalled Sherman, and was eventually rescued by a rowboat. There would be no rowboats this morning. But the swimming tanks were crucial to the Allied plan — so crucial that the Americans, who had rejected all other types of special armor, had equipped two battalions with the duplex-drive Shermans. The decision was made and at 0440 hours, ‘FLOATER 5’ was flashed to the two assault squadrons of the 13/18th Hussars.

The word was ‘GO’. On board the four L.C.T.’s that carried Wormald’s squadron of the 13/18th, the troopers made their final preparations. Canvas screens that allowed the 30-ton Shermans to float had been raised during the trip across the channel; and now the Second-in-Command of ‘A’ Squadron, Captain Lyon, checked the air pressure on each of the inflatable struts that held the canvas in place. Lyon looked at the sea and though they would all be in for a wet morning. He ordered a tot of rum for the five crews that would follow him in.

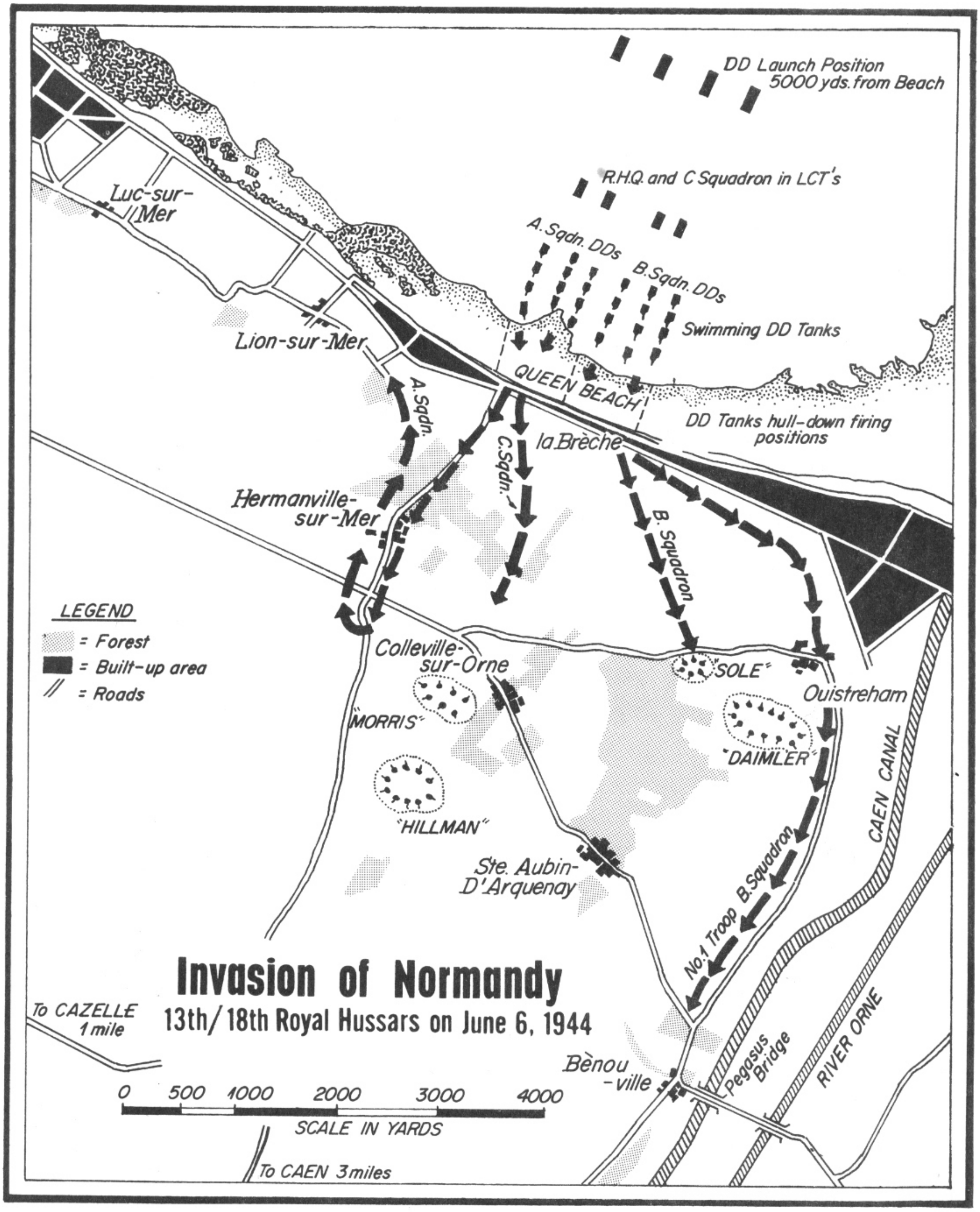
On the left of the line, Major Regge-Price’s ‘B’ Squadron was also making ready. Their four L.C.T.’s were supposed to launch them 7,000 yards out, but they were well past that point when the flagship hoisted the signal to drop anchor. Five thousand yards from the shore, the landing craft lowered their ramps and the Shermans moved forward. But as the squadron commander’s tank moved onto the ramp, the sound of ripping canvas was added to the rumbling engines and squeaking tracks. A large rent appeared in the tank’s flotation screen. The Sherman could not take to the water in this condition without sinking immediately, and now it blocked the other four tanks as well. Rugge-Price prepared to jettison the damaged vehicle and shift to the next tank, but in this he was overruled by the regimental commander, who decided that the whole load should be landed directly on the beach once the other tanks were ashore. It was disappointing, but events would prove it a wise decision.

Nearby, Capt. Robert Neave, Second-in-Command of ‘B’ Squadron, was more fortunate. Neave eased down the ramp into the choppy water. There was a sickening sensation as the tank left the ramp and plunged deep, the water coming within 6 inches of the top of the screen, but his Sherman proved surprisingly seaworthy under the conditions. After engaging the twin propellers the tank proceeded shoreward at a stately 3-knots. The other four Shermans from his L.C.T. followed like a brood of ducklings.

Lieut. W. Wormald (not to be confused with Major Wormald of ‘A’ Squadron) also cleared the landing craft without incident, and behind him No. 1 Troop of ‘B’ Squadron clattered down the ramp. However, as the fourth tank left the craft the chains holding the ramp in positions parted, dropping the vehicle straight into the water (a ‘four point launch’). Somehow the crew managed to keep it afloat; but there was now no way to launch the last Sherman. The damaged L.C.T., the fifth tank, and its crew made an anti-climactic trip back to England.

Meanwhile, a bit to the west, ‘A’ Squadron was also taking to the water. Major Wormald was in the turret of the leading

*Photo, Above: Disabled DD Sherman Tanks from ‘A’ Squadron, 13th/18th Royal Hussars following the assault on Queen White Beach. Note the very large, outline style tank turret numbers. Photo Credit: Author’s collection*



**Invasion of Normandy**
**13th/18th Royal Hussars on June 6, 1944**

Sherman; and, having taken his bearings from the church steeple in Lion-Sur-Mer, he ordered the driver to put it in first gear and proceed down the ramp. After a successful launch, the Major took station behind the L.C.P. (N) which was acting as guide and headed for the beach.

To the left of Major Wormald, Captain N. Denny led his five tanks into the water. The second Sherman had some mechanical difficulties which caused a slight delay and also forced the column to spread out. Nevertheless, within minutes all five were on their way.

Captain Lyon's group also disembarked without incident, but when Sergeant Sweetapple's tank dropped from the ramp of the fourth landing craft, its propellers failed to engage. The seas swept over the rear of the screen and the Sherman sank like a 30-ton rock. Fortunately, the crew were able to scramble clear and after a bried dip they were picked up, wet but safe. By 0530 hours 33 Sherman DD's were swimming towards Queen sector of Sword Beach.

The DD tank assault was part of a carefully timed plan, intended to clear the beaches before the first wave of infantry reached shore. The swimming tanks were to be the first element in, landing 7 and a half minutes before the assault companies. Two and a half minutes later, 'A' Squadron, 22nd Dragoons (16 Sherman flail tanks) and 77th and 79th Squadrons of the Assault Regiment, Royal Engineers (8 armored bulldozers and 24 A.V.R.E.'s) would be landed to clear the mines and beach obstacles while the D-D's followed them inland giving armor support to the leading infantry companies. The second element of the DD Regiment — the wading tanks — were to land forty minutes later with the second wave of infantry. That was the theory anyway. In actual practice, wind and wave played havoc with the schedule.

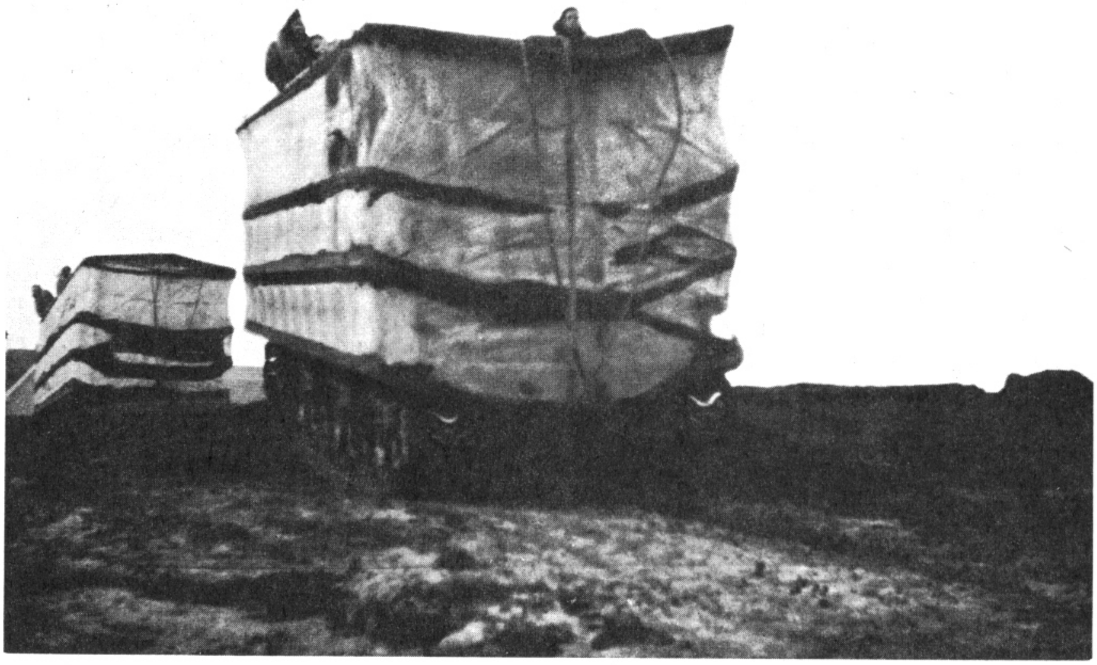
In the water, the seven columns of D-D's crept towards the surf line. Once the tanks had left the landing craft, their field of vision dropped sharply. The tank commanders were 2 feet above the water level and their view was frequently blocked by the wave crests. For some 30 minutes they bounced and pitched, following the guide boats and trying to keep station on the other bobbing and the spray-soaked shapes in the gathering light. Overhead the heavy sheets of the naval barrage whistled towards the beach. Then the L.C.T.R.'s let fly with their rockets, and 'shorts' began falling among the DD columns. Between Captain Lyon's tank and that of Lieut. Burgess, two rockets crashed into the sea, scattering fragments through the screens of both vehicles and nearly sinking the lieutenant's tank. Burgess himself was mortally wounded, but the tank made it ashore.

At about the same time, the landing craft carrying the Royal Engineers' vehicles approached the port quarter of the formation of swimming tanks. The delayed launch had thrown the carefully planned schedule into confusion and it now appeared that everyone would reach the beach at the same time. The DD's in the water were almost invisible from the L.C.T. conning towers and there were several near misses as the landing craft ploughed through.

About 1,000 yards from the beach the L.C.T.'s reversed their engine and halted, allowing the tank columns to again take the lead. But now the Germans were awake. Mortar shells began to fall among the milling craft. Now was the time for the orderly columns of DD's to shift into a line abreast prior to touch down. But as the tanks started to deploy, the wave of L.C.T.'s charged through the squadrons once again.

Capt. N. Denny of 'A' Squadron was about 800 yards from the shore when the high, blunt bows of a landing craft loomed above his Sherman. With a metallic clang, the two craft collided. Denny, riding in the turret hatch, was thrown clear of the tank as the Sherman rolled over and sank. upside down, in 25 feet of water. The other crew members were not so lucky.

A short distance away, Major Wormald was just touching down as the LCT's swept past. He was about 400 yards from the water's edge, and still too deep to lower the screen and bring his gun into action. Before the Major could shift from propellers to tracks and reach the shallows, the LCT's had dropped their ramps and the first A.V.R.E. was rumbling onto the beach. The whipcrack of an '88' brought it to a stop. Wormald was now moving forward through a forest of stakes topped with mines. It was low tide and the beach obstacles were now clearly visible, but other mines were not.


*Photo, Above: The DD Sherman with its flotation screens erected. These screens were easily cut, torn, ripped or damaged by enemy fire. Another danger was the lack of freeboard when 'swimming'; there was approximately 6-inches of space between the waterline and the top of the screen! Photo Credit: Author's collection*

Behind Wormald, Corporal W. Lee was also moving forward through the maze of obstructions when an explosion close alongside shredded the screen of his tank. Water poured in, but Lee managed to nurse his craft to a touchdown, then dropped the screen and opened fire. The waves swept over the engine compartment, flooding it and immobilizing the tank. Lee kept firing. Slowly the fighting compartment filled also. The driver and his mate scrambled out, but Lee continued to blast away until the gun itself was awash. The Corporal then joined his crew in the yellow rubber dinghy and paddled the last few hundred yards to shore.

Capt Lyon's column touched down a few yards further down the beach. As Lyon dropped his screen and opened fire, Sergeant Rattle's tank, some 50 yards behind, was run over by an LCT; but Rattle and his crew were able to get clear and make it to land.

On the left in 'B' Squadron's sector, Lieut. W. G. Denny was the first to reach the shore. Close behind was Capt. R. Neave who, with the Major still stuck aboard his landing craft, now found himself in command of the squadron. However, the 'Squadron' at this time consisted of Neave's own tank and that of Lieut. Denny — the others were nowhere to be seen. There was less immediate opposition here than in front of 'A' Squadron and Neave was able to move across the beach after throwing a few rounds at an 88mm emplacement and the upper-floor windows of the houses along the shoreline. The two tanks were halted after a few hundred yards by a line of soft sand dunes which proved impassible. Undaunted, Neave went back and located one of the bulldozers. Covered by the two Shermans, the dozer ploughed a route through the dunes, and in a few minutes, 'B' Squadron was off the beach. After reaching the first lateral road, the tanks again halted while Neave went back to the beach on foot to find the rest of his unit.

Meanwhile, all along the water's edge, the DD's were touching down. As Lance-Sergeant J. Hardie emerged from the surf, the tank on either side of him was hit by shell fire, leaving Hardie isolated and facing a wide expanse of hostile coast. Undismayed, Hardie opened rapid fire on the defenses, allowing the Dragoon's flails to clear the exit routes. Hardie started inland to support the advancing infantry, but once beyond the flailed lane, a mine erupted beneath the Sherman, bringing it to a stop. Hardie dismounted and, under steady shell and mortar fire, made his way back to the beach to direct traffic through the gaps.

A short distance away, Sergeant R. Hepper's tank was the only one in its group to make it across the beach. Hepper touched down well up on the sand near the mined anti-tank obstacles; then carefully he threaded his way through the obstructions. Once he had a clear field of fire, Hepper commenced shooting at any hostile targets in sight. Like Hardie, he too was isolated from the rest of the unit.

Sergeant Harry Morris was not alone. Morris was the third tank in his column and he began taking water the moment he dropped off the ramp. Wavs broke over the rear canvas wall and sloshed around the hull top until it found its way inside. Bilge-pumps thunked, but it was a losing struggle and the tank began to fill slowly. About a thousand yards out the column deployed for touchdown. German mortar and artillery fire began to fall among them and shell splashes added to the buffeting of the waves. Several hundred yards from touchdown, Morris caught sight of his assigned target — a seaside hotel with a gun emplacement built into the basement. Morris grounded directly in front of the hotel and the tank started to move through the shallows on its tracks. Not far away a DD droped its screens prematurely and was quickly swamped by waves breaking over the turret. Morris sitting in the turret hatch waited until the water level dropped below the danger point., then gave order, 'Down canvas'. The inflatable supports collapsed, and as soon as the falling screen unmasked the 75mm, the gunner pumped a round into the hotel. Several more followed and the German gun was silenced before it could fire. Morris then backed into the surf and passed a towing cable to one of the swamped tanks, while flail tanks of the 22nd Dragoons landed and beat a path inland.

Corporal Hind did not bother to locate a flail tank first. Instead, he drove straight across the minefields and off the beach, miraculously untouched.

While most of 'B' Squadron were engaged in scattered individual duels with the beach obstacles and gun emplacements, Major Wormald was able to maintain tight control over

*Photo, Above: The rear echelons of the 13th/18th Royal Hussars, on the beach near la Breche following the landings. In the foreground is an underground shelter, constructed to give protection against enemy bombings and shellfire. Photo Credit: Author's collection*

'A' squadron. As each of his tanks landed, it engaged preselected targets. Top priority was given to the anti-tank guns, but the Germans' infantry was not ignored. The hull machine guns kept the enemy troops pinned in their shelters while the first wave of the South Lanceshire Regiment stormed ashore. For nearly half an hour a fierce battle raged across the sand. Five of Wormald's tanks were damaged in the water and swamped, but their crews continued to fight until the turrets were awash. Six more fell victim to anti-tank fire from the beach; but by H + 20 minutes, only an occasional sniper and indirect artillery fire disturbed the residents of 'A' squadron's sector.

Capt. Neave was still looking for the rest of 'B' squadron when he met Lieut. Wormald and two tanks from No. 1 moving up the shingle. The lieutenant had lost one tank to shell fire when crossing the beach, but once free of the sand he picked up Neave and moved to join Denny with the other tanks. Crossing the lateral road, however, the two vehicles from No. 1 troop took a wrong turn and soon found themselves among the Free French of No. 10 (InterAllied) Commando in Ouistreham. While the commandos appreciated the unexpected assistance, this left Neave with only three tanks to support a battalion of infantry. Fortunately, the situation was soon remedied by the arrival of Major Rugge-Price and his five tanks, followed by the rest of the regiment at H + 40 minutes.

Meanwhile Major Wormald's depleted squadron advanced in support of South Lancashire Regiment toward the village of Hermanville-Sur-Mer. 'A' Squadron's fight on the beach had been costly but it had enabled the infantry to cross the sand with unexpectedly light casualties, and now the attack proceeded rapidly. Hermanville fell at 0930 hours (H + 120 minutes), and with their objectives in hand the South Lancashires dug in. One company, along with Major Wormald's remaining six tanks, was dispatched to help the Royal Marine commandos clear the town of Lion-Sur-Mer, a German strongpoint between the Sword and Juno beaches.

As Major Rugge-Price's LCT ground ashore on the Queen Red Sector of Sword, the sand was littered with the debris of the first wave. A few 'B' squadron tanks were stranded in the shallows and others were still attempting to get clear of the beach obstacles and minefields. The squadron's losses had been surprisingly light; but the confusion caused by the scattered landing and temporary loss of the squadron commander had resulted in a lack of coordination of the attack and higher casualties for the assaulting infantry. Nevertheless, most of 'B' Squadron rallied beyond the lateral road — except for No.1 Troop which could not be recalled from their excursion with the commandos.

As the tanks gathered, the East Yorkshire Regiment prepared for its next objective, the group of concrete fortifications about 3000 yds. inland. The first of these strongpoints was code named 'SOLE' and was defended by a group of about 40 Germans from the *716. Grenadier-Division*. The infantry was pinned down when Rugge-Price arrived on the scene; but the Shermans soon forced the Germans out of their trenches and into the concrete blockhouses. The tanks were brought up. By 1545 hours, 'SOLE' was in British hands.

'DAIMLER' was a tougher nut. About 1000 yards southwest of 'SOLE', this was a major fortification with heavy guns and extensive concrete works and a strong garrison; but the combination of DD tanks and infantry reduced it much the same way as the previous position. The defenders were able to hold out until nightfall but when the expected relief failed to break through, the Germans gave up at 2000 hours. All of their D-Day objectives in hand, 'B' Squadron moved to the regimental harbor in an orchard outside Hermanville.

While 'A' and 'B' Squadrons were kicking in the door, 'C' Squadron prepared to dive through the gap. Major Delaval Cotter's squadron was not equipped with the DD Shermans as were 'A' & 'B'. Instead special deep wading gear was fitted to the Shermans. There were also four 'Fireflies' with the high velocity 17-pdr gun, one with each of the troops. The plan was for 'C' Squadron to support the follow-up infantry (1st Bn., The Suffolk Regiment) which would pass through the assault troops and take the German strongpoints 'MORRIS' and 'HILLMAN', the latter being the command post for *Grenadier-Regiment 76*.

As the 'DD' crews approached their launching positions, the L.C.T.'s carrying 'C' squadron were not far behind. Since they would be landed directly on the shore, considerably more equipment was packed aboard each landing craft. The normal load was 8 tanks, 2 jeeps, a bren carrier or two, and whatever other motorcycles, trailers, etc. that could be fitted into the bottom of the boat. This left little room for the 10 officers and 100 men but everyone found a bit of space eventually.

At 0530, the tank crews were up and stirring. Lt. Norris got to his feet only to have the deck drop from under him. Before he could adjust, the steel plates rose again and staggered him Walking now became a matter of lurching from one hand hold to the next. The seas were getting rough.

As 'A' and 'B' Squadrons were dropping into the war, 'C' Squadron personnel busied themselves stowing bedding and gear aboard the tanks. Those who could face the thought of food, after bouncing across the channel, ate a light breakfast.

By 0630, the L.C.T.'s were passing through the group of infantry transports when the mist lifted revealing the vast Allied fleet. Signal flags fluttered. The line of LCT's turned to port, and, now in line abreast, began their run towards the beach.

Inside the tanks, the men took their stations. Belts of machine gun ammunition were fitted and checked. Hand grenades were removed from their containers and readied for use. Intercoms were tested. From their turrets, the tank commanders searched for the shoreline. It was a little after

0700 when they passed the first of 'A' Squadron's LCT's which were now empty and heading for home.

Thanks on a large part to the effective action of Major Wormald's command, 'C' Squadron was able to land without incident. The LCT's closed to within 20 yards of the water's edge, through a bewildering conglomeration of partly submerged obstacles. The ramps dropped and the Shermans clanked down into four feet of water, around them the swamped and burning hulks of a dozen 'A' Squadron tanks.

The beach itself was chaos. No direct fire reached them and the tankers were relatively immune to the mortar and long range artillery shelling; but the tangle of vehicles and units trying to sort themselves out and move inland at the same time was indescribable. In the water, Royal Navy frogmen were clearing gaps in the lines of underwater defenses, On the sand, AVRE's, flails and bulldozers worked frantically to open exits from the beach. And all along the surf line, more landings touched down to deposit more trucks, jeeps, carriers and bicycles upon the narrow strip of sand, a strip that the flooding tide was shirking with each passing minute. For three quarters of an hour, 'C' Squadron jostled its way towards the beach exits. Five of these exits had now been cleared by the hard pressed AVRE's and once past, the Squadron moved rapidly to join the Suffolk Regiment.

The first objective was a coastal battery code named 'MORRIS', located just west of Colleville-sur-Orne. Major Cotter detached one troop under Lieut. Eric Smith to sweep around the flank, clearing the town, while the remainder of his command covered the infantry assault. Smith approached the village cautiously. With another tank following, he entered the village, moving from block to block as the accompanying infantry checked each building. The other two Shermans nosed about through the orchards surrounding the town; but the only enemy encountered was a single German corpse lying in the middle of the main street. Not a shot was fired.

Meanwhile, Cotter brought the rest of the Squadron into action. The Shermans moved up to the wire entanglements surrounding the German position and pinned the defenders in their dugouts with machine gun fire while the infantry closed in. The concrete bunkers and gun pits were soon overrun and the first group of German POW's were hustled back towards the beach. It was 1300 hours.

'HILLMAN' was to be a different matter, however. From the ground, the strongpoint appeared to be a single concrete dome surrounded by a network of trenches and wire. But appearances were deceiving. Below the surface was a bast complex of underground galleries and machine gun emplacements, forming the command post of Oberst Krug's *Grenadier-Regiment 736.*, which commanded the shore defenses between Courseulles-sur-Mer and Ouistreham.

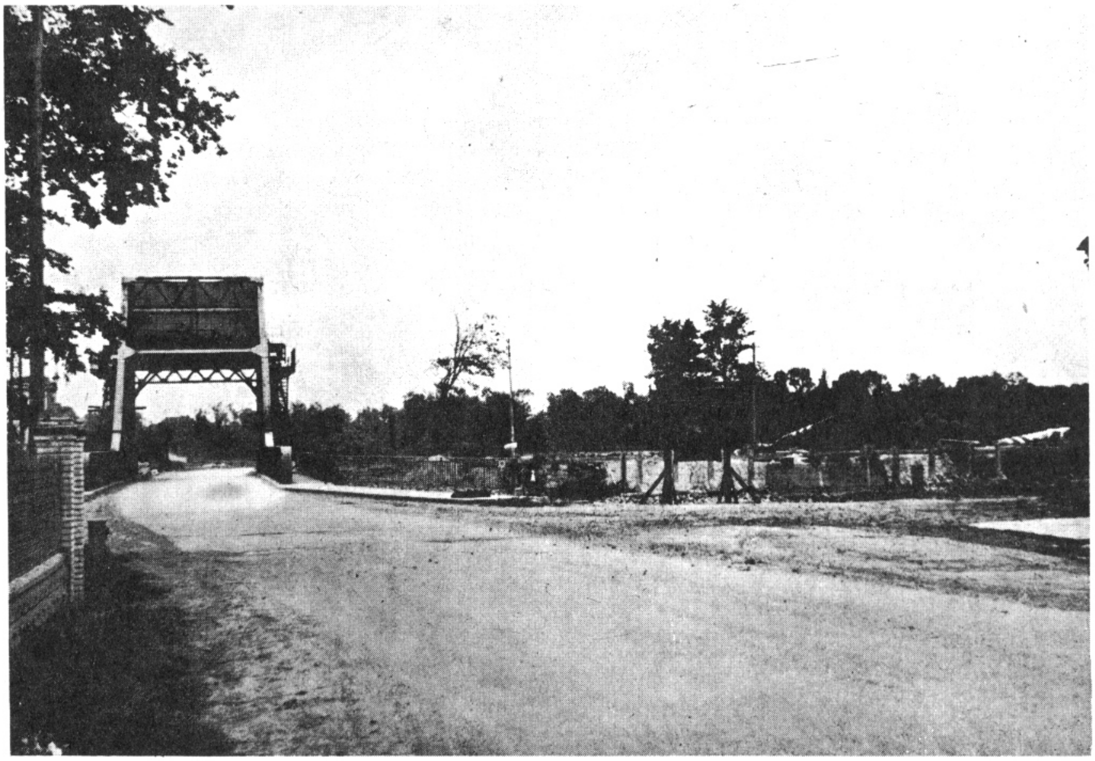
It was mid afternoon when Major Cotter's squadron reached the outer perimeter of 'HILLMAN'. The tanks took position and opened fire on suspected enemy locations, while sappers dashed forward to lift the mines and clear a gap. They were cut down by a hidden machine gun. Turrets swiveled and 75mm shells peppered the suspected M.G. nest. Another group of engineers charged into the gap, only to be pinned down by another gun. That too was dealt with and slowly a path was forced through the outer works.

With the way clear at last, Cotter sent his tanks in. Two troops were sent around the flanks to cut off any retreat, while the main body of the Squadron broke through into the central German position. The Brownings chattered, pinning the *Grenadiers* in their trenches while the Suffolks wormed their way up to each and forced the Germans out. When no infantry were available, the tank commanders themselves flung grenades from their turrets into those German trenches beyond the reach of their machine guns.

Corporal Arthur Hill's tank was among those heading for the center of the strong point, when a heavy shell landed close alongside. Thirty tons of Sherman shook, periscopes shattered, concussion rattled the crew. Hill's ears rang from the blast, but that was his only injury. Word was passed to advance, and the Shermans drove for the crest. Hill directed his driver to head for the concrete dome that marked the center of the position. The tank scrambled up the rounded slope, and from this commanding spot Hill's machine guns swept those Germand strong points still holding out. Below, assault sections of the Suffolk Regiment battled in the narrow passageways and underground galleries. The battle in the corridors would last all night.

Once the surface battle was ended, however, Major Cotter withdrew his Squadron to an orchard on the outskirts of Colleville-sur-Orne, where he was met by a replentishment party led by Major Cordy-Simpson of the Headquarters Squadron. Time was essential, as *21. Panzer-Division* was launching its counterattack just west of the Squadron's position. Petrol tanks were refilled, and soon the Squadron was once more combat-ready.

At 1930 hours, Cotter led his tanks out of the harbor area. They took up hulldown positions along a low ridgeline west of 'HILLMAN' and waited for the *Panzers*. But the Germans never arrived. *21. Panzer-Division* had been committed piecemeal and although *Panzer-Grenadier-Regiment 192.* did not reach the coast between Sword and Juno Beaches, the tanks of *Panzer-Regiment 22.* were stopped cold by the 17-pounders of the Staffordshire Yeomanry before they could reach the area held by 'C' Squadron. At 2330 hours, the Squadron retired to a grove north of Colleville for refueling and a few hours of sleep. D-Day was over...



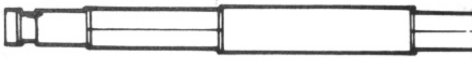
*Photo, Above: The Pegasus Bridge over the Caen Canal and then the River Orne. Note the glider's wings showing over the wall on the right. Also note the sign in the right center of the picture, naming the bridge and showing the Pegasus airborne symbol. Photo Credit: Author's collection*

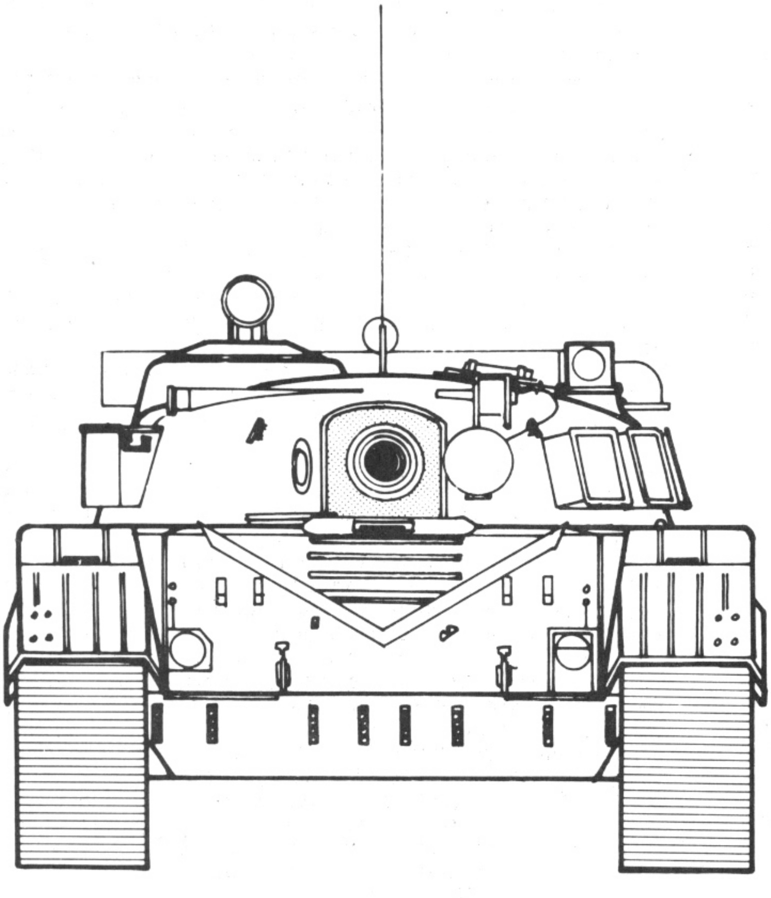
* * *

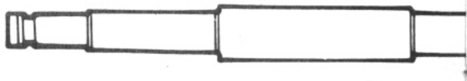
# Soviet medium tank T-72

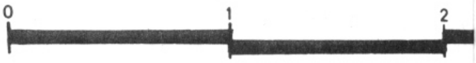
Drawn by Steve Zaloga

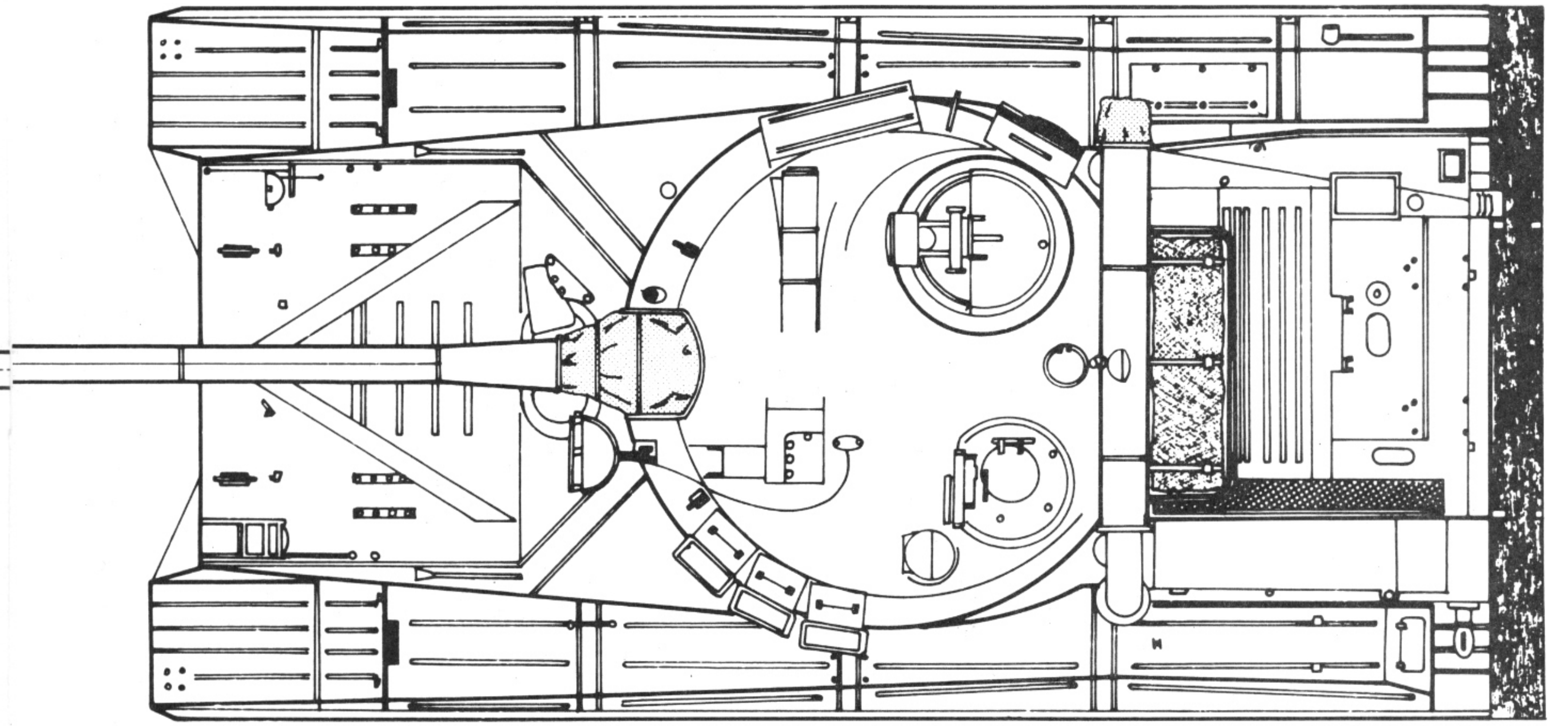
Scale 1/32

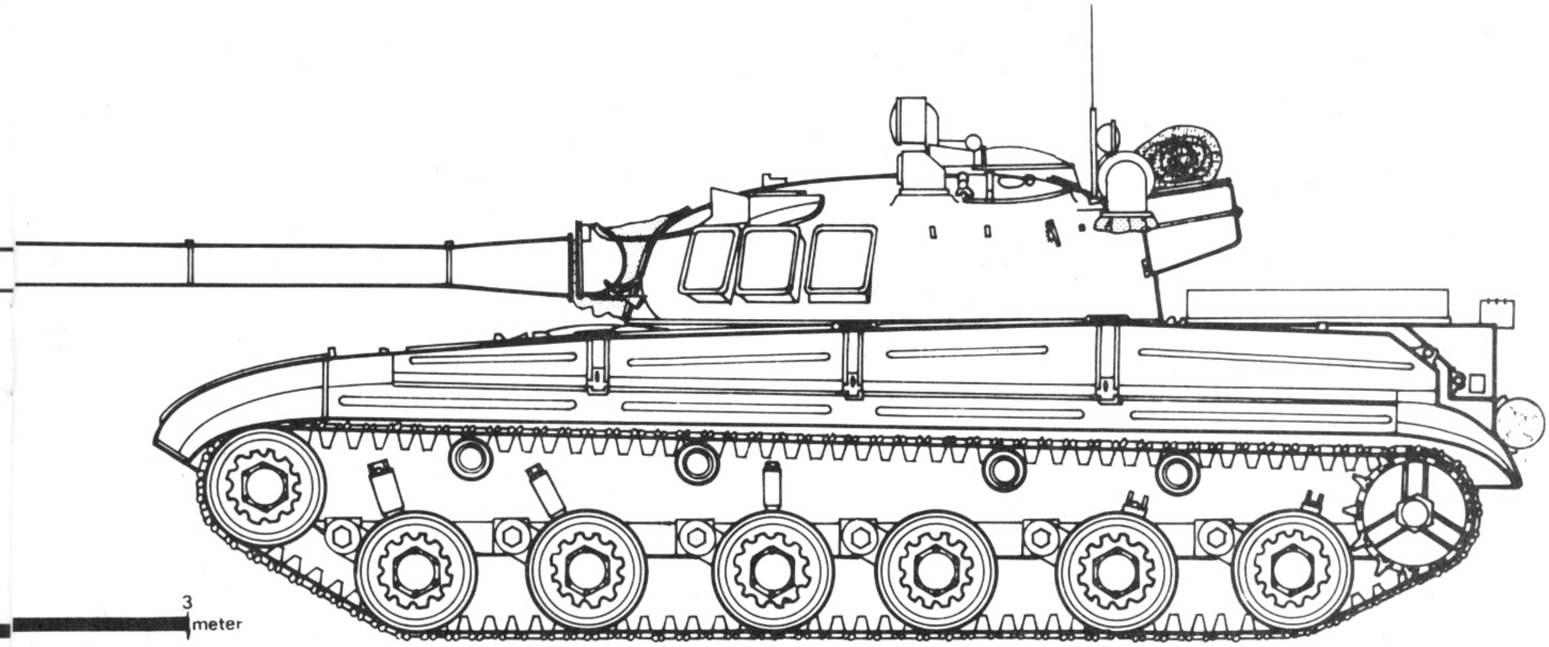












S. Załoga

# MARKING BRITISH VEHICLES: A GUIDE FOR SERIOUS MODELERS... PART 6.

# WILLYS & FORD 'JEEPS'

### BY WILLIAM PLATZ

During the summer of '42, a strange new beast appeared among the denziens of his majesty's motor parks. Cleverly camouflaged under the designation 'Car, 5cwt., 4x4', the newcomer was happily accepted by the powers-that-be, although there was perhaps a bit of jealousy on the part of such prior residents as the 'Humber Snipe' and 'Austin Light Utility'. Nevertheless, the Jeep had arrived with the British Army and it was there to stay.

The first of several different types of 'Jeeps' to see British service was the Bantam 40 BRC, of which 1000-plus were provided under Lend-Lease. Another variant, the Ford GP, was also provided in quantity, with the British getting the lion's share of the 1500-unit production run. However, the vast majority of British Jeeps were either the Willys MB (361,349 total production) or the Ford GPW (277,896 total production). These last vehicles were virtually identical in appearance to the Willys. An estimated 50,000-plus Jeeps were provided to the British (estimate based on the establishments of British units, total U.S. vehicles provided to the U.K. (264,000), and percentage of production.

## I. INFANTRY UNITS

In service, the Jeep was used by nearly every type of British unit. In Motor Infantry Battalions, these vehicles were employed by company officers for personal transportation and liaison work. There were six Jeeps in the 1944 establishment — two at Battalion Headquarters, one with each of the three Motor Companies, and one with the Support Company. Oddly enough, the regular line Infantry Battalions were provided with an even greater number of Jeeps — 15 in all. There was one for each of the six company commanders, one for the battalion's second-in-command, three for the Pioneer Platoon, three for the Medical Detachment, one for the Quartermaster, and one for the Padre.

Infantry unit markings consisted of the formation sign and unit-serial-number complex described in previous parts of this series. A recognition marking of either the R.A.F. style roundel used in North Africa and Italy, or the white five-pointed star used in the U.K. and northwest Europe, appeared on the engine hood (bonnet) in conjunction with the War Department (Census) Number. This latter marking was in 3-inch high lettering in either black or white, depending upon the background color of the vehicle. Beginning with the letter 'M', valid numbers include M5473922 through M5477139, as well as others. Numbers were painted on both sides of the engine cover, and/or on the rear bumper. As the Jeep provided minimal space for larger markings, the formation signs were usually painted on metal plates, which were then fastened to the radiator grill or the bumpers. Also attached to the front of the vehicle was the bridge plate, which was yellow in color bearing a black number (2, 3, 5 or 3/2 were all used at various times). Some units used additional tactical markings, either in the form of geometric shapes as employed by tank units, or in short letter-number codes, such as 'OC' and 'MO-1'.

## II. ROYAL ARTILLERY

Jeeps, with their outstanding cross-country mobility, were ideal vehicles for the wide ranging liaison work of the Artillery Regiments. The exact number of Jeeps assigned to the Field Regiment is uncertain, and appears to have varied from unit to unit. Table I. provides a listing of code letters used on Jeeps of the Field Regiment.

The Light Anti-Aircraft Regiments made greater use of the Jeep, with 12 in each Battery, as well as a number in Regimental Headquarters. The RHQ vehicles were substantially the same as for the Field Regiment (using the same code letters); however, the additional battery vehicle codes are shown in Table II.

A more complete description of Royal Artillery tactical markings can be found in Part II. of this series (see **AFV-G2**, Vol.5, No.10); but basically, they are the same as for Infantry units with the addition of the Battery marking and code letters. Of course, the Unit-Serial-Number complex would be different in both color and code.

## III. ARMORED CAR UNITS

In January of 1943, a Jeep Troop was added to each Armoured Car Squadron in the Middle East. The three Jeeps of this troop, with their low silhouettes, were used for inconspicuous scouting. They were removed from this activity at the end of the North African Campaign, but remained with the Regiment's 'B' Echelon. (They were replaced in combat by the Daimler Scout Cars covered in Part V. of this article series.)

The ubiquitous Jeep was also widely used by the Reconnaissance Regiments of the Infantry Divisions. Each of these regiments was provided with three Jeeps in Regimental Headquarters, three more in the Intercommunications Troop of the Headquarters Squadron, two in each of the three Reconnaissance Squadron Headquarters Sections, and six in the 'Jeep Troop' of each Squadron as well. A total of 30 vehicles were assigned to the Regiment.

Markings for Armoured Car and some Reconnaissance Regiments were also covered in Part V. of this series. Infantry Division Reconnaissance Regiments carried their Division's insignia, and the Unit-Serial-Number '41' on a blue and green Arm-of-Service Flash.

## IV. AIRBORNE UNITS

If the Jeep was a blessing to most British units, it was an absolute necessity to the Airborne Divisions. By 1944, Britain had organized two Airborne Divisions, an Independent Parachute Brigade, and the 44th Indian Airborne Division. (The latter division saw service only in the Far East.) Once on the ground, these airborne units depended almost entirely on Jeeps for motor transport until they were rejoined by their rear echelon units. As a result, 904 Jeeps were assigned to each division. Most of these were assigned to the Airlanding Brigade; however, each of the division's units had their share of these vehicles. In the Parachute Battalion, Jeeps were used as towing vehicles for the heavy weapons. They were also employed as prime movers for the twenty-seven 75mm pack howitzers of the Light Regiment, Royal Artillery, and as the supply carriers for the division's R.A.S.C. Company. Additionally, the bulk of the divisional Reconnaissance Regiment was mounted in Jeeps.

All Airborne units used the same formation sign, and the distinction between divisions was only found in the Unit-Serial-Numbers. Otherwise, markings were as for other British units.

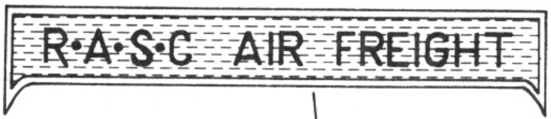
## V. THE JEEP KITS

There are a large number of 'Jeep' kits available in a wide variety of scales, as well as an equally wide range of quality. Only one of the Jeep kits, however, purports itself to represent a vehicle in British service — Tamiya's 1:35th scale Special Air

## UNIT IDENTIFICATION TABLE

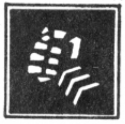
| Letter | Vehicle and Unit Description | Color & Camouflage | Date-Time Period |
|---|---|---|---|
| A | Jeep assigned to "A" Company, 2nd Battalion, King's Royal Rifle Corps, 1st Armoured Division, North Africa | Overall Sand | January 1943 |
| B | Personal Jeep of the Division Commanding General, Division H.Q., 6th Armoured Division, Italy | Overall Olive Drab | Summer 1944 |
| C | Jeep assigned to 20th Transport Company, R.A.S.C., Air Despatch Group, 21st Army Group, Northwest Europe | Overall Olive Drab | 1944-1945 |
| D | Jeep assigned to Royal Ulster Rifles, 6th Air Landing Brigade, 6th Airborne Division, Normandy, France | Overall Olive Drab | June 7, 1944 |

C. Identification Marking- 4" high Olive Drab Letters on a Chrome Yellow Panel with a White, 1" Border

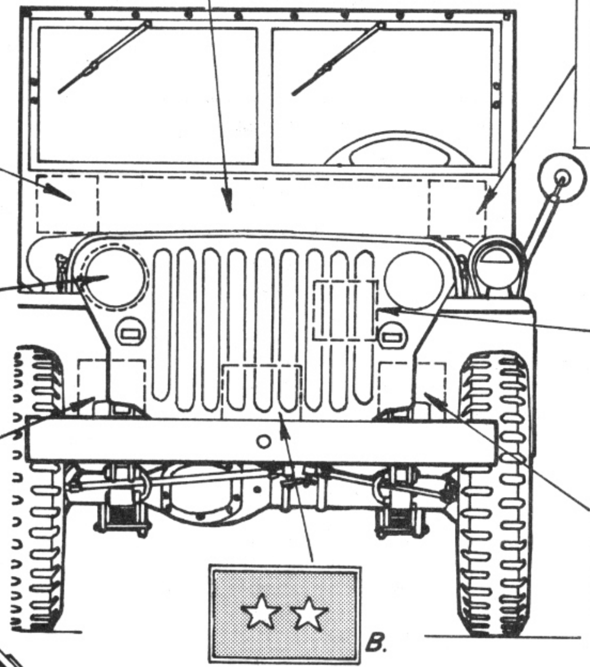


A. Unit Serial Number- White 7 on a Green Square (painted)

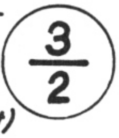
B. Formation Sign- Stencil White Mailed Fist on a Black Square with a White Border (painted)



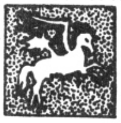
B. Unit Serial Number- White 40 on a Black Square with a White Border (painted)



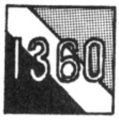
D. Bridge Plate- Black Numbers on a Yellow Disc (metal plate over light)



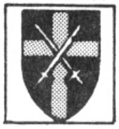
D. Formation Sign- Light Blue Pegasus on a Maroon Square (on a metal plate)



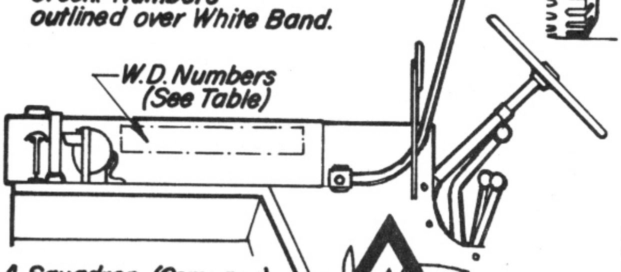
C. Unit Serial Number- White 1360 on a Square divided diagonally Red (upper), White and Green. Numbers outlined over White Band.



C. Formation Sign- Yellow Crossed Swords on a Blue Shield bearing a Red Cross (on a metal plate)



B. Rank Identification- Two Gold Stars on a Red Rectangle with a Gold Border (on a metal plate) Note: Identical plate on rear fastened to left gas can holder.



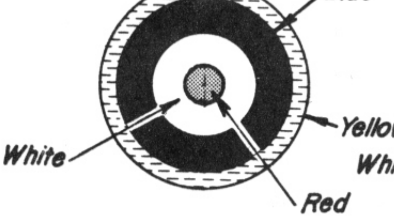
A. Squadron (Company) Marking- Red Equilateral Triangle

C. Small White Star, partially covered by vehicle shovel

War Department (Census) Numbers

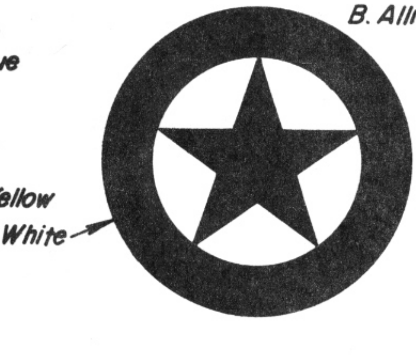
| Code | Numbers | Style of Numbers, etc. |
|---|---|---|
| A | M 4724499 | 3-inch high, solid Black |
| B | M 5308446 | 4-inch high, solid White |
| C | M 5474132 | 3-inch high, solid White |
| D | M 5474125 | 3-inch high, solid White |

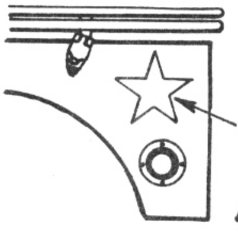
A. Hood Recognition Marking



B. Allied Recognition Star on Hood, 30" outside diameter in White

C. Allied Recognition Star on Hood - 24" outside diam. in White





D. Small White Star on rear of side of body

Drawn by J. Steuard

### TABLE I.- FIELD REGIMENT JEEPS

| Codes | Function | Notes |
|---|---|---|
| J1 | Messenger | Often replaced by M/C |
| J2 | " | " " " |
| J3 | " | " " " |
| J4 | " | " " " |
| J5 | " | " " " |
| J6 | " | " " " |

***Above used for all 3 batteries, with appropriate battery marks.***

### TABLE II.- LIGHT AA REGT. JEEPS

| Code | Function | Notes |
|---|---|---|
| X | BATTERY COMMANDER | |
| K | BATTERY CAPTAIN | |
| WS | R.E.M.E. DETACHMENT | |
| AR1 | A TROOP COMMANDER | RA1 also used |
| AR2 | A TROOP 2nd-in-Command | RA2 " " |
| TLA | A TROOP LEADER | |
| BR1 | B TROOP COMMANDER | RB1 " " |
| BR2 | B TROOP 2nd-in-Command | RB2 " " |
| TLB | B TROOP LEADER | |
| CR1 | C TROOP COMMANDER | RC1 " " |
| CR2 | C TROOP 2nd-in-Command | RC2 " " |
| TLC | C TROOP LEADER | |

***D,E & F Troops of 2nd Battery, and G,H & I Troops of 3rd Battery have similar codes.***

Service Jeep. Although this kit contains a wealth of detail and add-on goodies, there are no decals! Thus, any markings you use to mark your model Jeep must either be scrounged from 'ye olde decal boxe' or (horrors of horrors) be hand painted! Most of the other kits include useable elements, such as recognition stars, but no matter which you use, you will have to look elsewhere to find a full set of markings.

Included with this article are four sets of markings for Jeeps which may be os interest...

**Building a 1:285th Scale Armor Diorama [Continued from Page 37]**

structures. It's important to initially use the paint that is matched to the color of the earth, not the grass, wheat, or foliage that grows on the earth. The reason for this is that you'll need that earth color where you have roads, gullies, and ditches — places from which the ground cover has been worn away or removed. However, to raise the 'tone' of the grassy areas, mix in green and yellow paints in these spots. These paint gradations will add depth to the effect.

It is also important that you do *not* let this viscous paint dry before adding the turf texture. Ground cover textures such as grassy turf, dirt, sand, and gravel, can be duplicated with one of two substances.

For 'hard' surfaces, such as desert floor, mountain gravel and the like, use fine white sand. For the 'soft' look of grassy surfaces, we recommend the use of ground-up foam, available at most hobby stores. You can get foam in a variety of colors, permitting you to get very close to the colors of the actual ground cover; and the foam visually duplicates grassy or gorse-like cover. In our micro-dioramas, the scale for ground foam works out to be 4-inches to 12-inches of actual height.

After application, the fine white sand will be totally absorbed by the thick wet paint, but the ground-up foam will only be half-absorbed. This is a factor that is important to the look of the diorama — the sand/paint base will have a harder look when it is dry. The foam will make for a softer, more temperate-climate look.

We used several different brown-colored foams for our example, sprinkling them onto the areas we wanted to cover. You can add density to softer ground covers, for a lusher look, by tamping more foam into the gluey paint surface. This added foam can be given additional security by spraying with a pump-bottle, mist hair spray. (Don't use an aerosol — the pressurized spray will blow the loose foam all over your work table.)

Road surfaces, paths, and the like will have little or no grassy cover. These areas are left bare; or sprinkled with sand to achieve a gritty look. After you've applied the various textures, allow the entire diorama surface to dry thoroughly.

*Adding display articles.* All AFVs, trucks, jeeps, and infantry figures that you wish to add to the diorama should be painted at this point. Because of the intricate detailing available on 1:285th-scale miniatures, always take particular care to highlight that detail. We currently use a three-step process, one that includes base painting, detailing, and final blackwashing, in order to emphasize each vehicle's realistc appearance.

At this point, the diorama should be completely dry. Attach the miniature AFVs to the diorama base with white glue. (See Fig. 5) Scrape away the surface cover just enough so that vehicles will sit into it slightly; after all, a Tiger I is a 57-ton vehicle, and that's going to make quite a footprint. Here again, actual pictures will give you a lot of help. In temperate terrain vehicles seem to sit down more into the cover; in desert areas and highlands, vehicles almost seem to be resting on the top surface at times, without any footprint as all. For an additional effect, vehicle tracks can be scratched lightly into the top cover.

Are all vehicle decals applied? Notice in our example that we've added Micro-Scale numbers to the *Elefant* — '524' — to closely duplicate the original photo. How about unit markings? Are you going to add weathering to the diorama?

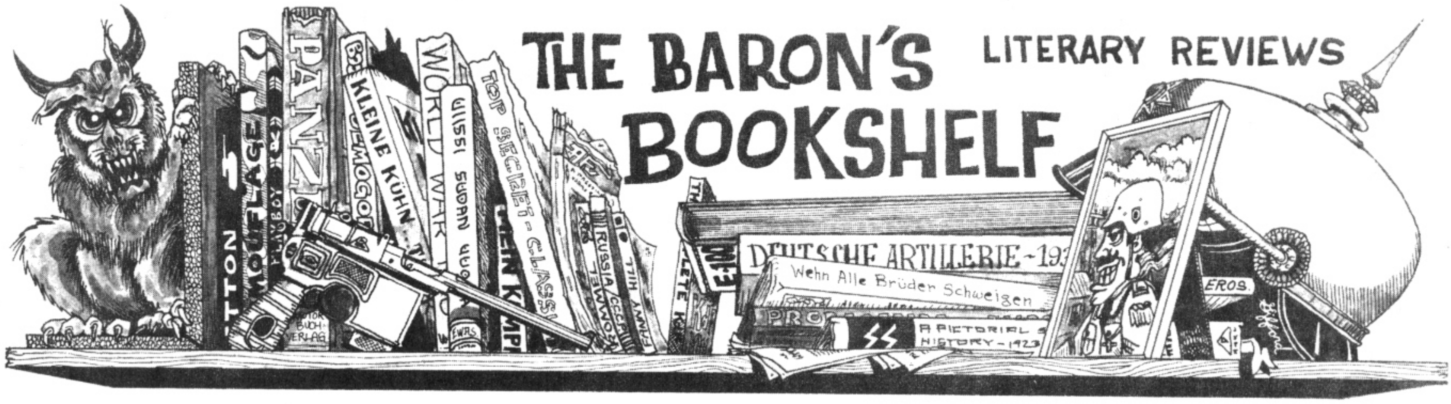
The last step is adding the foliage to the tree trunks and bushes. A model railroad product, Woodland Scenics, offers a highly effective yet inexpensive way to accomplish this. Woodland scenics is a sponge foam product, available in a variety of colors. Use white glue to apply the sponge to the trunks. Remember to match colors for seasonal effects, as well as to duplicate terrains. We used greens and golden browns in our scene, with touches of red, to suggest the autumn period in which the action takes place.

*Essentially, that's it!* Our example micro-diorama is done. Obviously, we've covered only the broad strokes here, presenting just the guidelines. You'll find that additional interest can be created by varying the diameters of the tree trunks, and by trying different surface textures. If you're duplicating part of a village, HO-scale brick building sides can provide a way of getting European-style cobblestone streets; to accomplish this, strips of the plastic siding are worked into the diorama surface to achieve the desired effect.

You might wish to experiment with 1:285 scale figures, too. In our micro-diorama, you can just spot the Russian infantry, piling out of the Jeep (see Fig. 6). Just because the figures are tiny doesn't mean they're impossible to paint, and they can add a lot of interest to the scene.

Perhaps the most important thing to remember in creating micro-dioramas is that they don't put a lot of pressure on you when you're building them. Generally, you're working in an area only a little larger than an 3x5 index card, and if you make a mistake, you can easily scrape it down and start over, with little time lost. Even the models are forgiving: they're cast-metal, and if you make a painting error, just wash them in lacquer thinner and start over. It won't take you very long to paint them, and to paint them very effectively.

We hope these steps will give you the fundamentals. The finished product — a detailed, interesting micro-diorama — is definitely achieveable, and very enjoyable.



# THE BARON'S BOOKSHELF

## LITERARY REVIEWS

Product Review: **'Michael Wittmann', German Tank Ace** Poster (Simpson/Shiverick Publications, Ltd., P. O. Box 1595, Boise, ID 83701, $4.98 plus postage)

Reviewed by Duane Thomas

To most German armor enthusiasts, the name of Michael Wittmann will be familiar. Best known as the leading German tank 'ace', Wittmann was a brave, resourceful and experienced armor commander who led tank platoons and companies equipped with the famed 'Tiger I.' heavy tank. The exploits of this famous German tank 'ace' have been commerated in a four-color poster published by Simpson/Shiverick Publications of Boise, Idaho.

In describing the poster, the first impression is its size and color. Measuring 23 x 35-inches in size, this poster gives a graphic look at Michael Wittmann, his crew and their Tiger I. heavy tank, additionally giving some basic text background to the subject. The poster is quite colorful, and it is obvious that the publisher was striving for high quality printing as well as accuracy in depicting Wittmann. In the poster, Wittmann, standing in the cupola of a Tiger, is posed in front of a large Knight's Cross of the Iron Cross, a decoration that he was awarded. In the poster's four corners are views of the four crewmen who fought under Wittmann's personal leadership. The feeling is that it was a 'crew' effort that stood behind the success of Wittmann...

This is an excellent and colorful poster offered at a reasonable price. If you're a German armor buff, the poster will make a nice addition to your collection of models and books. We understand that Simpson/Shiverick has more posters in the works, and that they will soon release one covering a vehicular subject... a Bergepanther recovering a vehicle in Normandy. For more information, drop Simpson/Shiverick a line...

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Book Review: **Panzer Grenadier Division 'Grossdeutschland'**, by Horst Scheibert, and edited by Bruce Culver (Squadron/Signal Publications, 3461 E. Ten Mile Road, Warren, MI 48091, $9.95)

Reviewed by Kurt Fischer

The 'elite' formation of the World War II. German Army was **Panzer-Grenadier-Division 'Grossdeutschland'**, and it is fitting that several books are available covering operations of this division (and the various formations formed from it). Until recently, all of these books have (logically) been in the German language, and this has created a problem of understanding for American and English readers. This has been remedied, at least partially, with the release of a photographic volume by Squadron/Signal Publications. The book is actually a translation from one of the available German books, and has been edited by Bruce Culver; it was originally offered under the same title by Podzun Verlag.

Squadron/Signal's **Panzer Grenadier Division 'Grossdeutschland'** is in 8½ x 10-inch format, with soft cover, and contains 176 pages. Coverage includes 278 photographs, numerous maps, some small drawings of insignia, and several charts showing unit organization at various stages of the war. Don Greer has provided a colored front cover illustration, and four small vignettes in color for the rear cover. Text in the publication is limited to short introductions for each of the chronological sections, chronological time-line tables, and photo captions.

Since photographic works exist solely to provide photographs of the assigned subjects, we should first comment on the quality of the pictures. In one word, they are 'spotty'... Some of the photos are quite excellent, with excellent reproduction. Others are very coarse and grainy, showing signs of having been enlarged too far to fit into Squadron's expanded side format. Some pictures are so coarse that no detail is visible. The greatest failure in this publication is in regard to the text (or should I say the lack of text), and this problem was inherited from the original German publisher. (Podzun Verlag is 'famed' for their poor quality photos and captions.) To Mr. Culver's credit, he did attempt to expand on some of the captions... and these show considerable improvement over the original German; however, I would imagine that it would take more time than was available to do a fully creditable job. On the positive side, many of the photos are excellent in terms of subject material, clearly showing uniforms, insignia, vehicles and tactical markings. To a modeler, these pictures will present new material which will be of considerable aid in modeling research. On this basis, this publication can be recommended. To a serious historian who is interested in the combat operations of **'Grossdeutschland'**, and who wishes to expand on his knowledge of this subject, this book does not contribute enough to be worth the price. We suggest that you weigh your intended purpose before you spend $10 on this book...

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Book Review: **The Armies of the Warsaw Pact**, by Dr. Friedrich Wiener (Articles of War, Ltd., 7101 Ashland Avenue, Chicago, IL 60626, $9.50)

Reviewed by James Steuard

In **AFV-G2**, Volume 5, Number 10, Mark Diehl reviewed the German language edition of **Armies of the Warsaw Pact**, along with two contemporary publications from the same author, indicating that this publication could only be ordered from the German publisher (a fact that was probably due more to the high price the German version commanded). For modern armor enthusiasts, good news recently arrived here in the form of an English language edition of this book. An additional bit of good news was that the English version is available **cheaper** than the German version, and that's something hard to find today... something that's actually cheaper!

To say the least, **Armies of the Warsaw Pact** is a very useful book, literally crammed with helpful information. Major sections of the book cover: 1) The Warsaw Pact; 2) Organization of Warsaw Pact Armed Forces; 3) Battle and Command Principles; 4) Weapons and Equipment; and, 5) Uniforms, Rank and Insignia. In addition, there are a comprehensive Index and Bibliography.

To readers of our magazine, the most useful section will be the one covering weapons and equipment. While the photographs are fairly small, most of them will be new and fresh to western readers. All are clear and are well chosen to show the particular piece of equipment. Small drawings are spread throughout the book, illustrating each (and almost every) vehicle and piece of equipment. Most of the vehicles are illustrated by a front and a side view, clearly showing details. In addition, the descriptive text includes basic data for the vehicle or weapon.

Continued on Page 44

# THE GERMAN PANZERSPÄH-WAGEN 'LUCHS' RECONNAISSANCE TANK

### by James Steuard & Gary Simpson

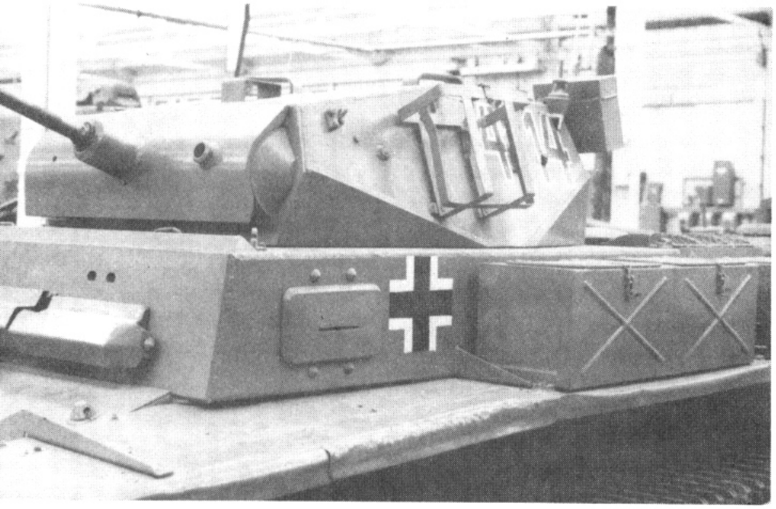
The final operational version of the German *Panzerkampfwagen II.* light tank appeared in 1943, under the designation *Panzerspähwagen II. (2cm KwK 38) 'Luchs'* (or Armored Car II. (20mm) 'Lynx'). Designed as a full-tracked replacement for the 4-wheeled *Sd. Kfz. 222* series of armored cars, the *Panzerspähwagen 'Luchs'* was a logical step in providing better mobility and armor protection by using an exsisting chassis (although modifying it considerably) of what was otherwise an obsolete vehicle. It is clear that this vehicle was not considered to be the final (or best) version of a reconnaissance tank, for development continued on a larger, more powerful, and better armed vehicle for this purpose. The chaotic situation in the closing year of the war brought this development to an end, as well as bringing about the conclusion of *'Luchs'* production.

The *Panzerspähwagen II. 'Luchs'* externally differed in considerable detail from its predecessor light tanks. Instead of the quarter-elliptically sprung, small diameter road wheels, the vehicle used an evolution of the overlapping wheel, torsion bar sprung road wheels that had been developed on German halftrack vehicles and which also saw service on the Panther medium tank. This suspension system permitted greater speed with a loose track (since the overlapping road wheels better supported and guided the upper section of the track during its movement) and a smoother ride over broken or rough ground (gained from a greater number of torsion bars, spaced closer together). However, this system also suffered problems inherent in the design, identical to those of the halftracks and the Panther. Mud and snow often impacted between the overlapping road wheels, increasing the pressure, and causing drag and binding, and eventually leading to failure of the axles or throwing of the track.

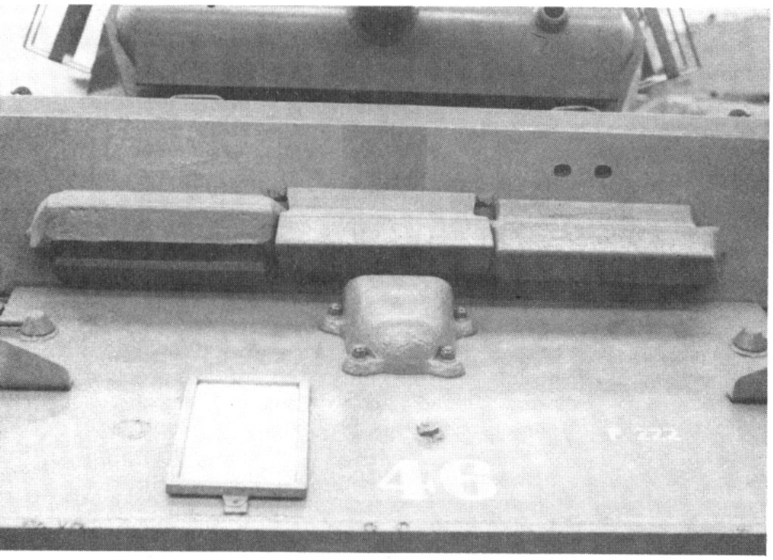
The hull of the *'Luchs'* reflected the final evolution of the *Panzer II.* Expanded and manufactured from smooth, simply welded plates, the *'Luchs'* hull provided greater interior space, especially since exterior boxes and racks supplied additional stowage for equipment and spares. The vehicular crew remained four in number, with two crewmen positioned in the hull: a driver on the left, and a radio operator on the right. Differing from other German AFV's, the radio operator did not operate a hull-mounted machine gun... in fact, the radio equipment occupied the space immediately in front of the operator since the hull was quite narrow.

A point that may not be obvious should be mentioned here. The *Panzerspähwagen II.*, with its four-man crew, squeezed one additional person into the tank than did the earlier *Panzer II.* light tank, which had only the driver positioned in the hull. This, of course, represents one of the reasons for the enlargement of the *'Luchs'* hull, as well as a reason for the greater amount of external stowage.

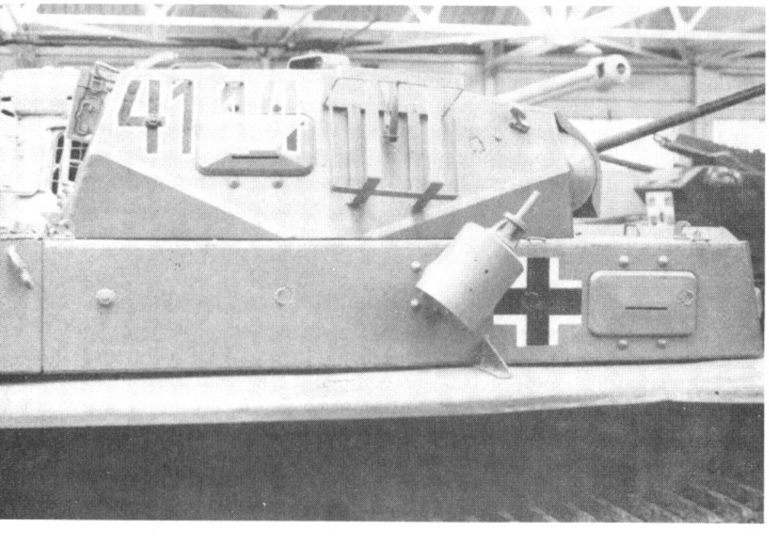
The turret followed the design trend established in the



*Photo, above: An angled side view of the* Panzerspähwagen *II. at the RAC Museum in England. Note the external fender stowage boxes and the fuel-can rack on the turret side. This view nicely shows the turret construction. Also note the splash bar running across the hull immediately in front of the turret.*



*Photo, above: This photo shows details of the hull front of the* 'Luchs'. *Note the two holes for the driver's episcope, by which he had visibility when the visor (below) was completely closed. The radio operator also had a vision block (and visor) in the hull front instead of the more common rotating periscope. Both the driver's and radio operator's hatches opened downward (into the compartment) with the enclosed hinges positioned on the outward sides of the hatches.*



*Photo, left: A partial right side view of the* Panzerspähwagen II. *shows the turret side vision port and the rotatable antenna base. On regular* 'Luchs' *vehicles, the antenna base mounted a simple rod antenna. The version shown is a 'command' vehicle, mounting the rod antenna on the left rear of the turret. The pivoting mount held a 'command' ground-plane antenna* (shown *in the drawings on the following pages*).

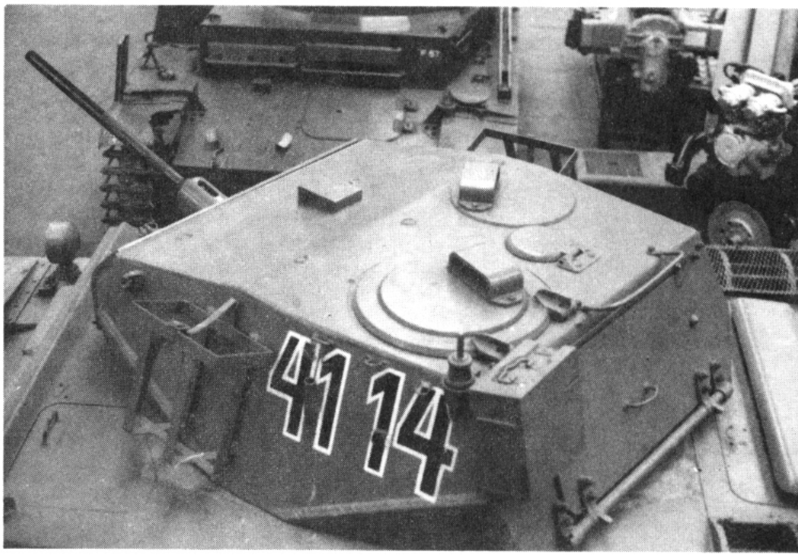
earlier *Panzer II.* The commander was positioned on the left, and the gunner on the right side of the turret, with the *2cm KwK* armament positioned between them. The gunner's optical sight was located directly in front of him, while a coaxially mounted 7.92mm *MG34* was mounted in front of the commander, where he could re-load or clear jams as required by the situation. The commander also was charged with the re-loading of the 2cm armament, since the weapon's ten-shot magazines were inserted from the left side of the gun. The turret is quite small internally, and one wonders how the crew occupied the space on the vehicles armed with a 5cm cannon!

The principal armament of the *Panzerspähwagen II.* was the *2cm KwK 38*. This weapon appeared externally identical to the *2cm Flak 38* anti-aircraft gun; however, the sear of the fully-automatic anti-aircraft gun had been changed to a semi-automatic configuration to better suit the conditions facing a reconnaissance tank. The cramped quarters inside of the turret prevented useage of the anti-aircraft 20-round magazines, so the 20mm weapon was fed by shorter 10-round magazines, in the identical manner to the gun mounted in the *Sd. Kfz. 222* light armored car.

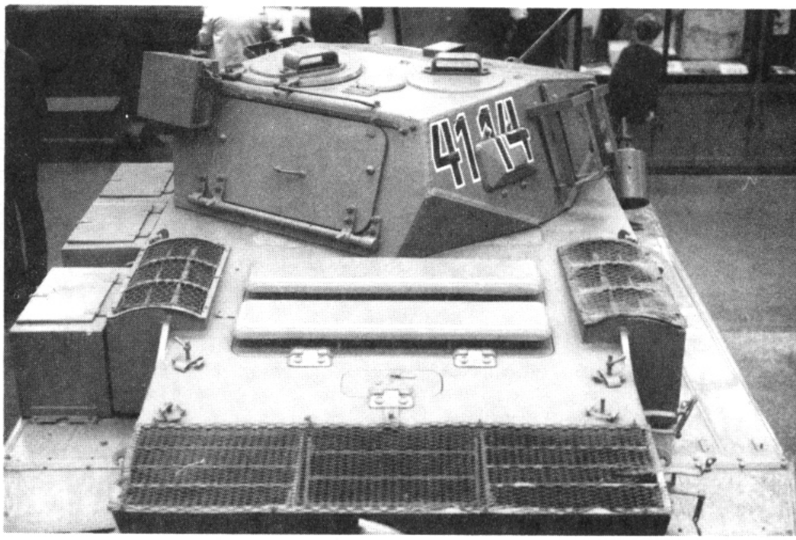
Traverse of the turret remained hand-powered, since the turret was relatively light. The gunner's hand traverse handle, shaped like a pistol grip, was operated by his right hand, turning in a horizonal plane. The pistol grip also contained the firing trigger for both turret weapons. The elevation wheel was operated by the gunner's left hand, turning vertically, and it was positioned below the breach of the 20mm gun. The safety switch for the weapons lay on the left side of the 20mm gun, where it was operated by the vehicle commander. Ready ammunition in the form of already loaded magazines was stowed in trays beneath the turret ring on both side of the hull. The vehicle carried roughly double the amount of available ammunition than was available in the *Panzer II.* The turret did not have a floor or basket beneath it; instead, the crew rotated (or moved) with the turret by sitting in two seats which were fastened to the turret. Clearance for feet was somewhat close, since the drive shaft for the engine nearly bisected the hull vertically. When the turret was positioned in the forward direction, both of the hull crew members could be evacuated through the turret, if this were necessary. It should be stressed that, although the reconnaissance tank was spacious when compared to earlier light tanks, the interior was fairly cramped for four crew members.

According to authoritive sources, the initial production run of the *Panzerspähwagen II* totally 100 vehicles. Following a pause, production was resumed with a run of a further 31 vehicles, all of which were armed with a 5cm gun in the turret. Few if any photographs have been found by the authors of this latter vehicle; most photos which purportedly show the 5cm gun have been retouched to the point where it is not clear if the 5cm gun has been artistically added.

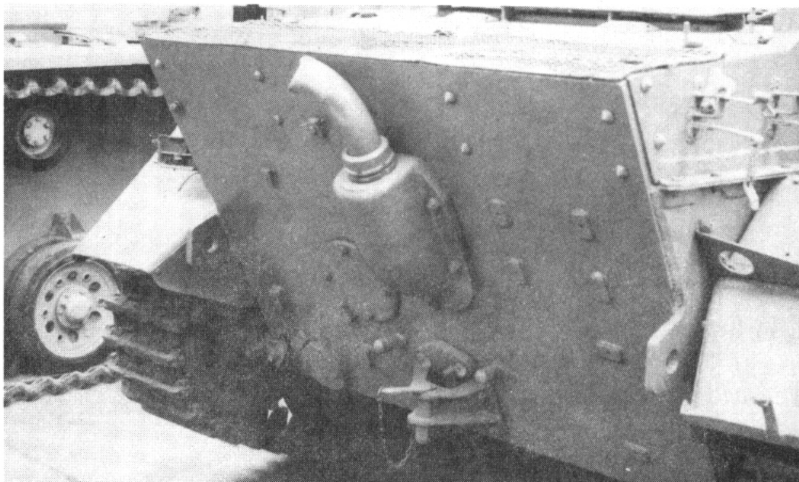
It is difficult to determine exactly which German *Panzer-Divisionen* were provided with the *Panzerspähwagen II. 'Luchs'.* An order-of-battle chart does indicate that *Fallschirm-Panzer-Division 'Herman Göring'* had one company of 17 of these vehicles within its divisional reconnaissance battalion. Photographic evidence indicates that one or more of the *Waffen-SS Panzer-Divisionen* was provided with the *'Luchs'* during the fighting in Normandy in June-July of 1944, and it is one of these vehicles that is shown in the photographs in this article. Since not all *Panzer-Divisionen* were provided with full-tracked reconnaissance vehicles, and since the *'Luchs'* was used interchangeably with the similar *Aufklärungspanzer 38(t)*, it is very difficult to further pin-down an operational order-of-battle for this most interesting vehicle.



*Photo, above: This photo clearly shows the turret roof details. The commander was positioned on the left, and his hatch opened upward and rearward. Note the fully-rotatable periscope concentrically-mounted in the hatch. The smaller hatch with periscope on the right was for the gunner; the periscope in the hatch also rotates to provide side vision. This hatch opens upward and rearward also. Note the outward-opening turret rear hatch; in non-tactical situations, this hatch was usually left open, being laid back to rest on the rear deck. Note the antenna base on the left rear of the turret.*



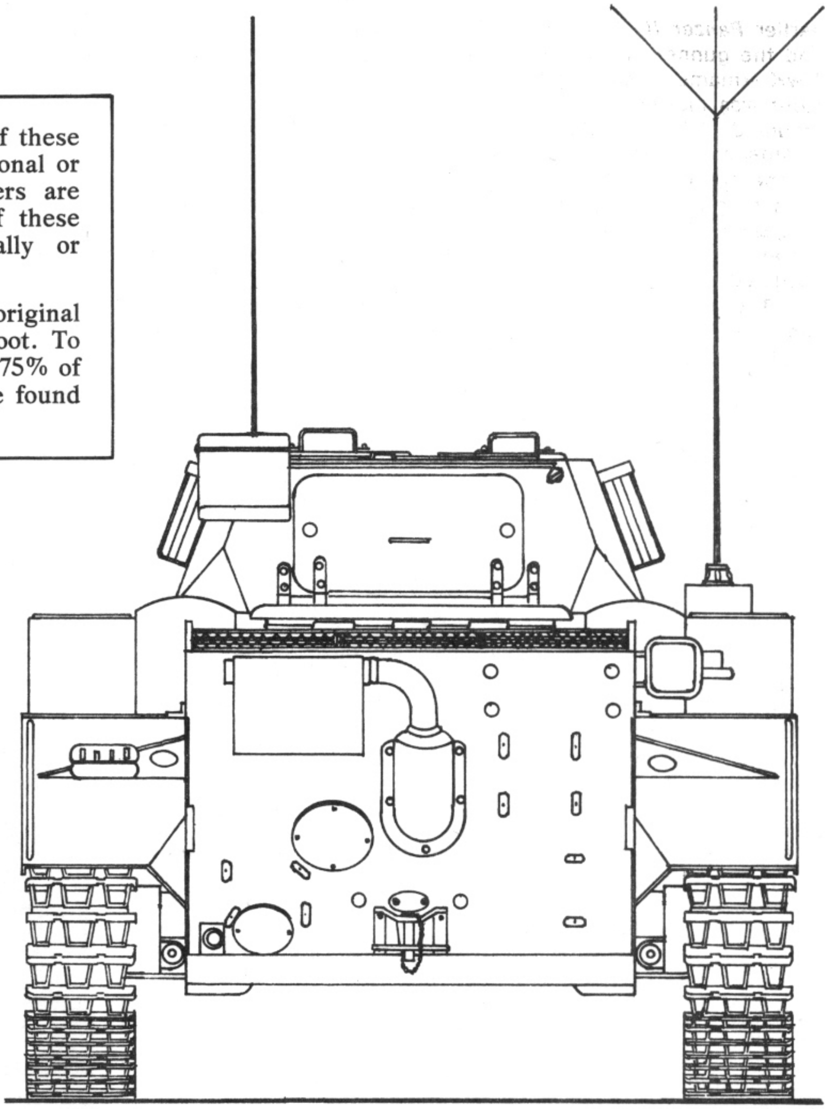
*Photo, Above: This elevated rear view shows the rear decking arrangement, and the rear access door to the turret. This rear door pivoted downward, resting against the ventilator cover when opened.*

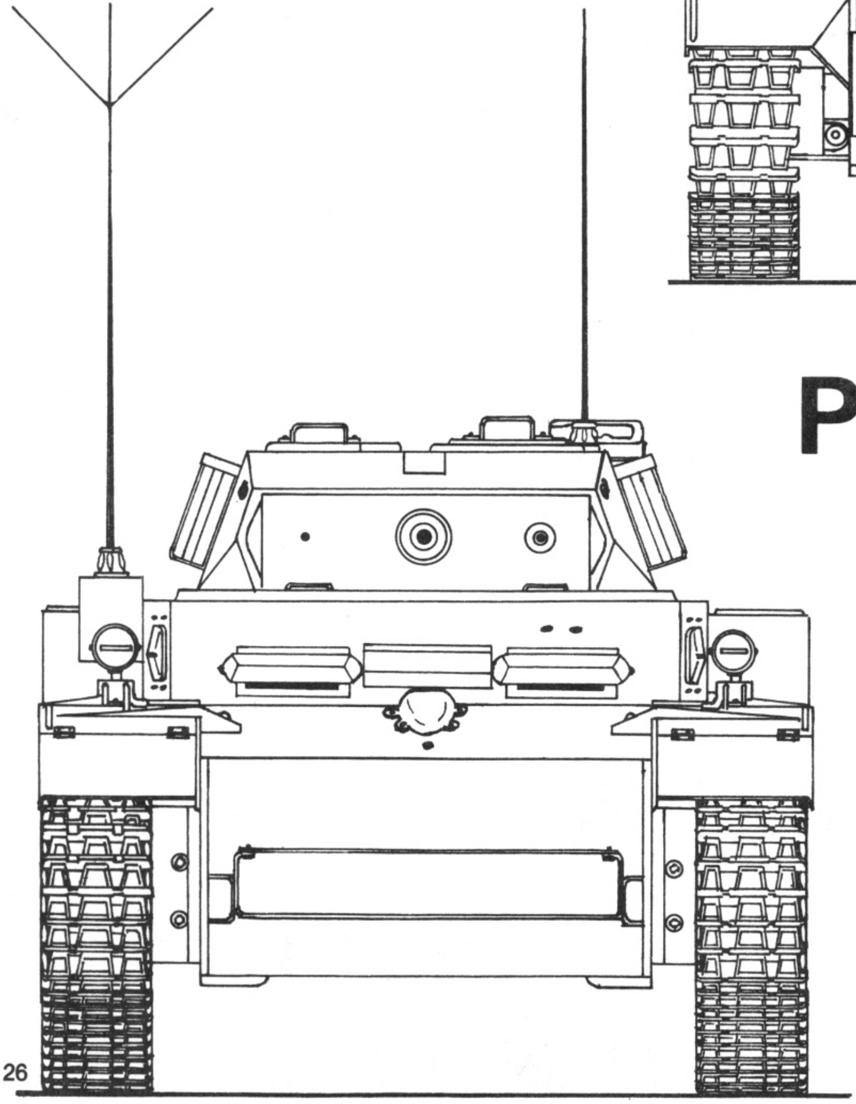


*Photo, right: This photo shown the rear of the hull. The towing pintle arrangement is complete, although the exhaust system is missing the oval muffler. See the rear view drawings on the next pages for the construction of this exhaust system. The circular plate covers the hand cranking hole used to start the engine by hand.*

Magazine Purchasers may have photocopies of these drawings made locally as an aid to their personal or commercial modelmaking; however, Purchasers are not granted the right to distribute copies of these drawings to other persons, either personally or commercially.

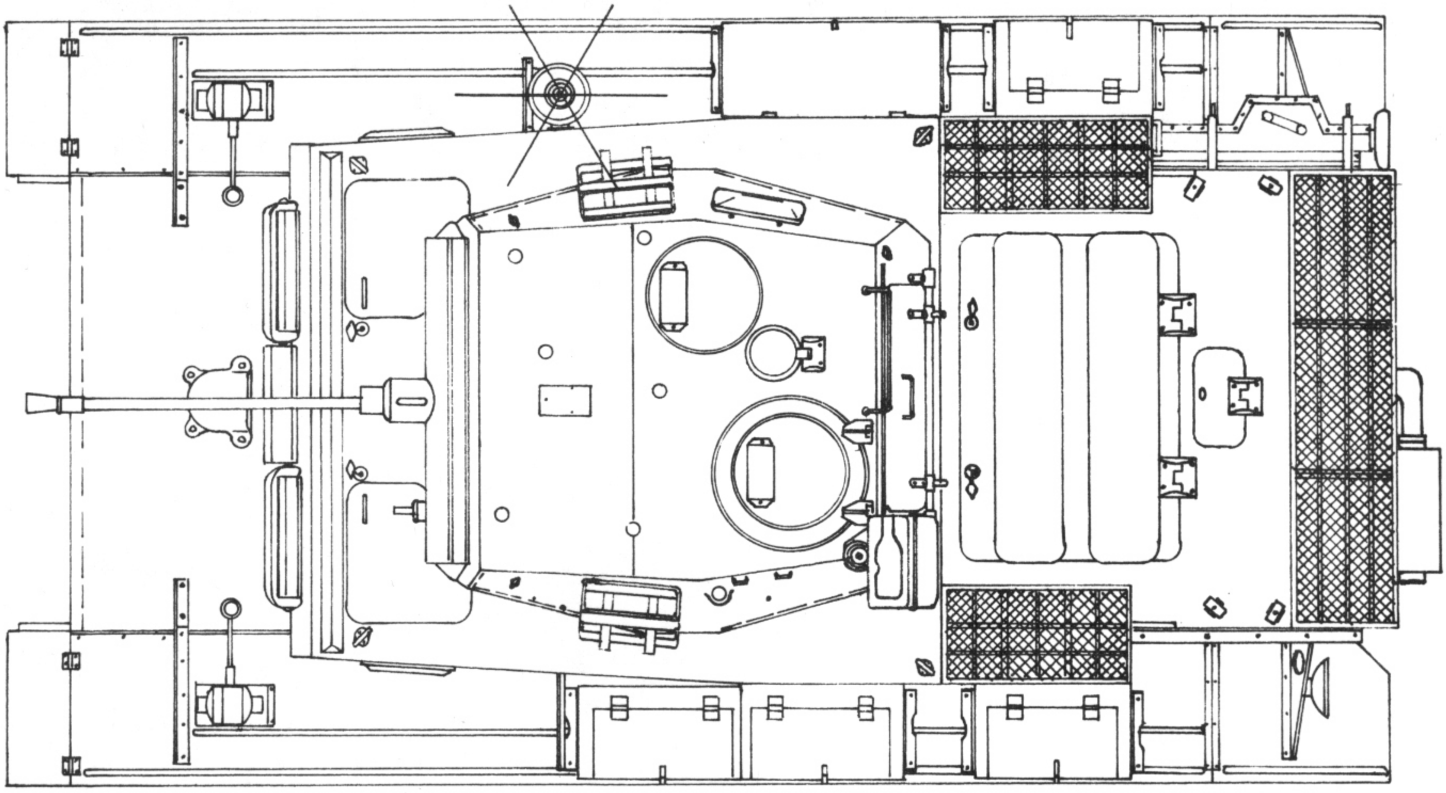
Ratio of the size of these drawings to the original vehicle is 1:24, or one half inch equals one foot. To obtain 1:32nd scale drawings, photo-reduces to 75% of the original size. 1:35th scale drawings will be found on page 45 of this magazine.



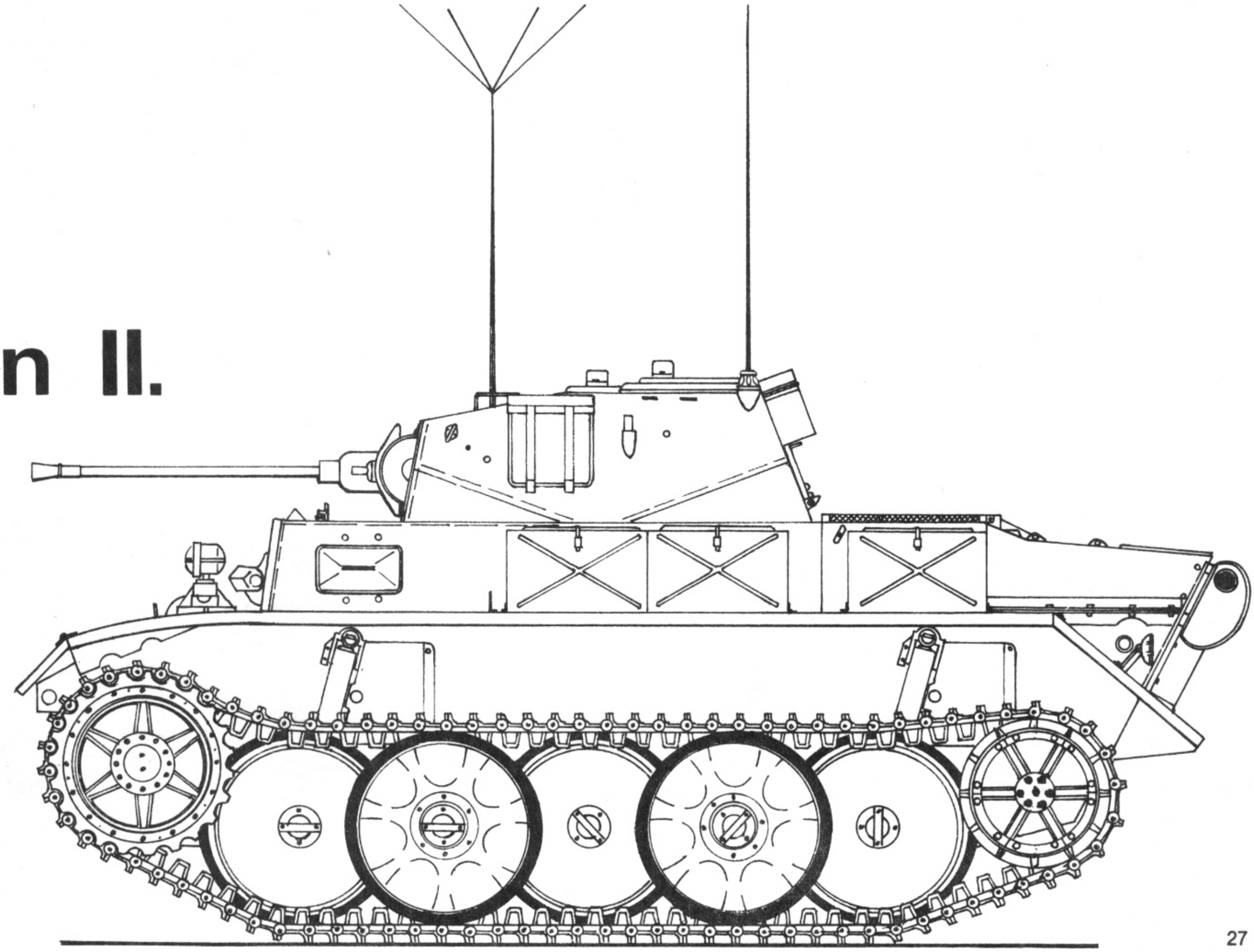


# Panzerspähwag
# ‚Luchs’
# Sd. Kfz. 123

**Drawn by S. R. Cobl**
**Scale: 1 / 24**



# gen II.

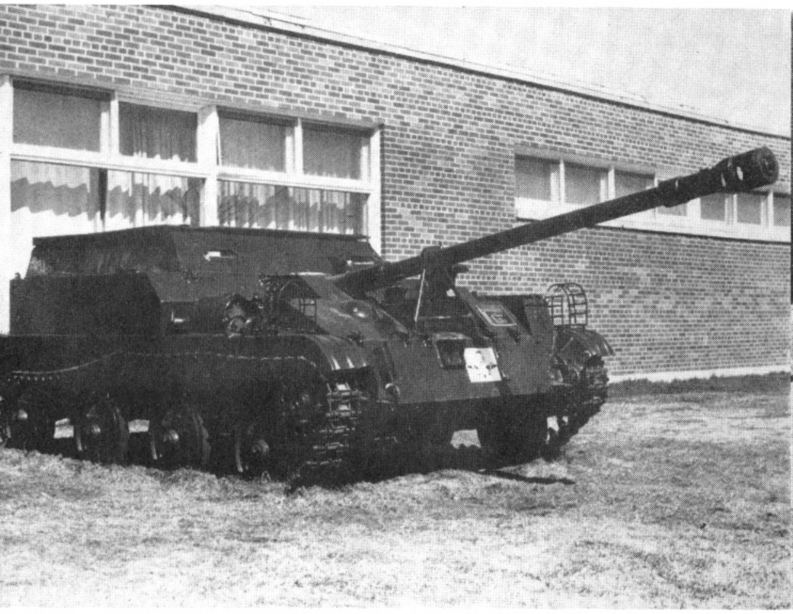


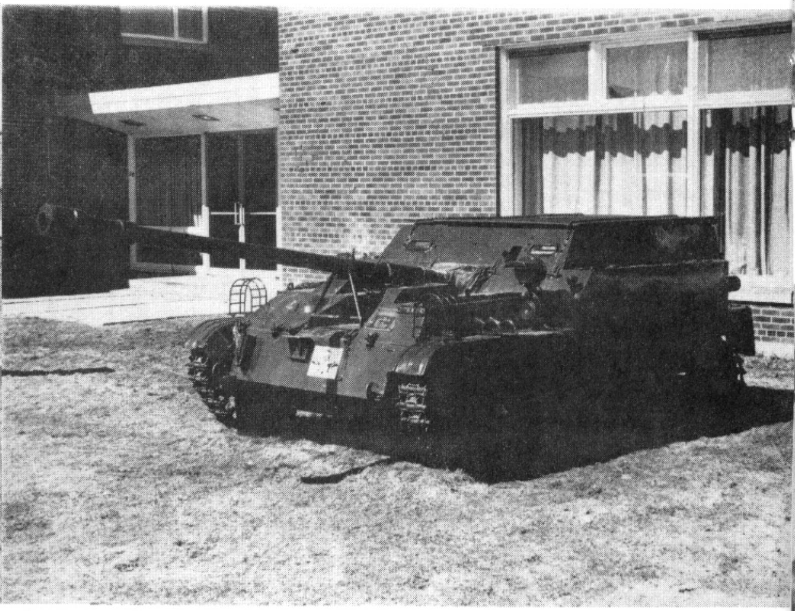
b

# ARMOR IN PICTURES

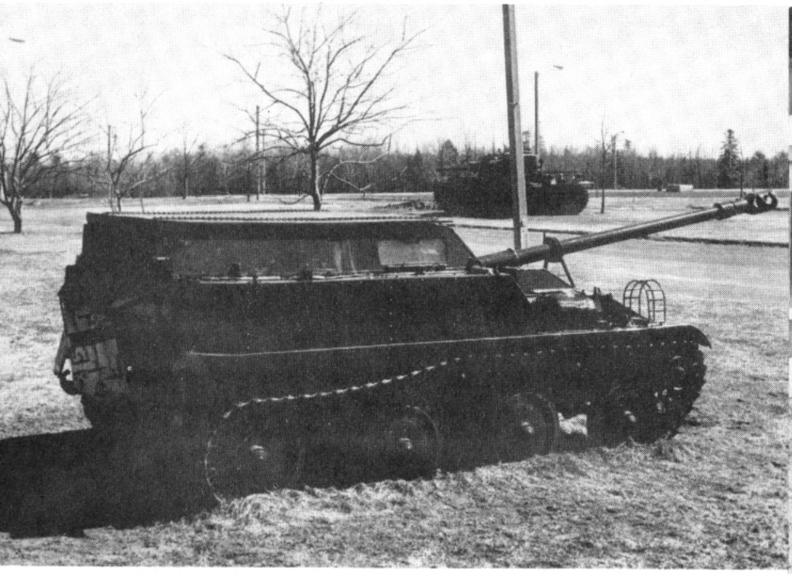
**'Armor in Pictures'** is a photographic article series to display reader-submitted material on military vehicles and associated models or dioramas. Readers are invited to submit their photographs for inclusion in this series. Photos should be packed securely, preferably between sheets of cardboard to prevent folding and/or damage, and sent to **AFV-G2**, P. O. Box 820, La Puente, CA 91747, Attention: **'Armor in Pictures'**. Credit will be given in the photo caption for all photos published, and photos will be returned after publication, along with a copy of the magazine in which the pictures appear.

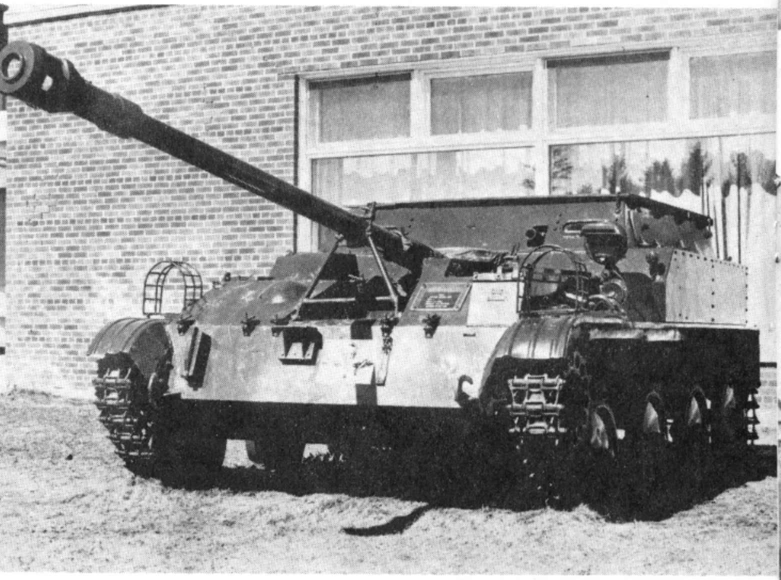
**'Armor in Pictures'** is also designed to serve readers as a forum for reader requests. If there's a particular photo reference needed for modeling, for data, for accurate markings, etc., drop **AFV-G2** a note (at the above address) to let the staff know what is required. Our staff will attempt to provide the photos that the readers wish to see, and we'll also provide a list of requested photos that readers are searching for...



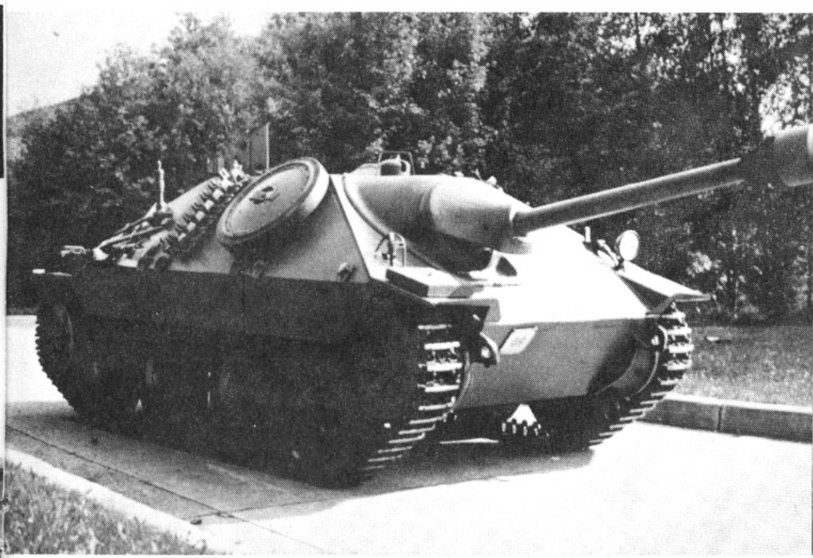


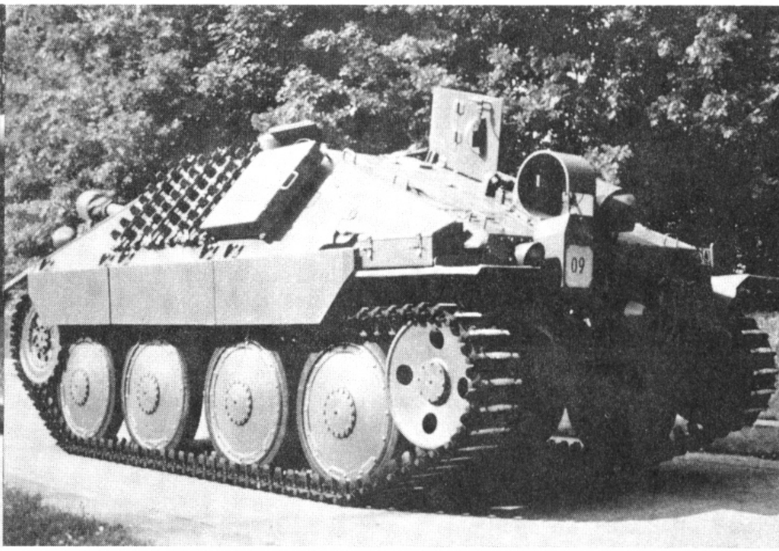
The photos above and below were taken by CPT Dwight C. McLemore during a recent tour of duty in Canada. They show an ex-Soviet ASU-57 airborne self-propelled gun, which is on display at the Canadian Armed Forces Combined Arms Training Center, Camp Gagetown, Oroncoto, New Brunswick. The steel plate over the crew compartment was placed there to help keep water out of the vehicle. Note the late-style gun blast deflector, and the curved guards over the two headlights. The plastic-covered sign on the hull front gives the basic vehicle data. Modern vehicle buffs may be interested in comparing these photos with last issue's centerspread drawings. As far as is known, this is the only ASU-57 in western hands.



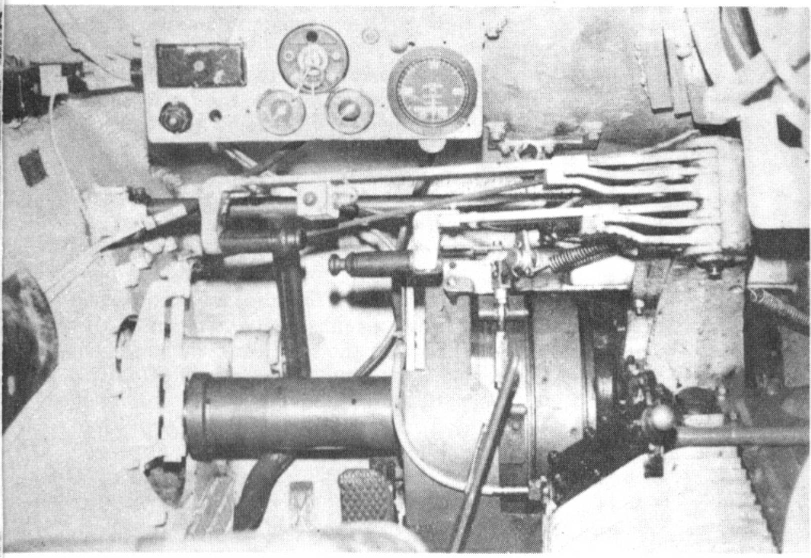


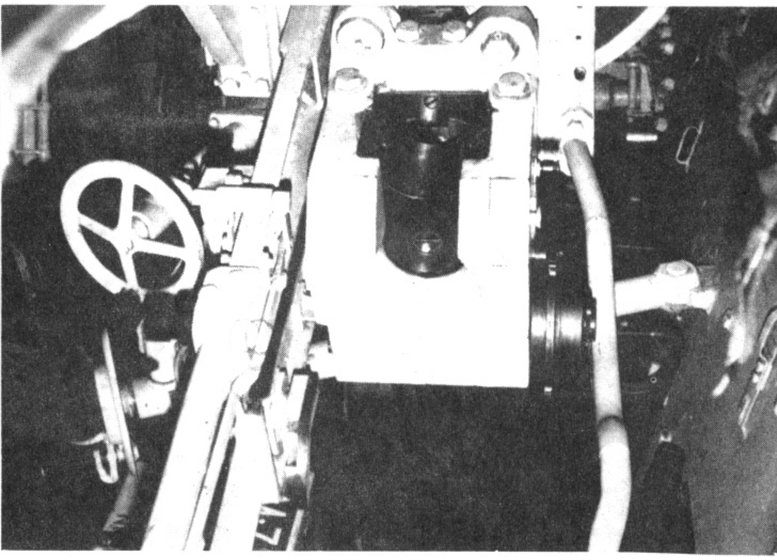
Opposite, left, is a close-up photo of the gun mantlet on an ex-Swiss G.13 tank destroyer, showing the details on the underside. The photo on the right was provided by Dr. Larry Raskin, and it shows the prototype T5E1 Medium Tank which is on display at Fort Knox, Kentucky. Externally, this tank closely resembles the M2 Medium Tank from which it was modified... only a close look reveals the location for the twin 37mm guns which were mounted side-by-side in the turret.



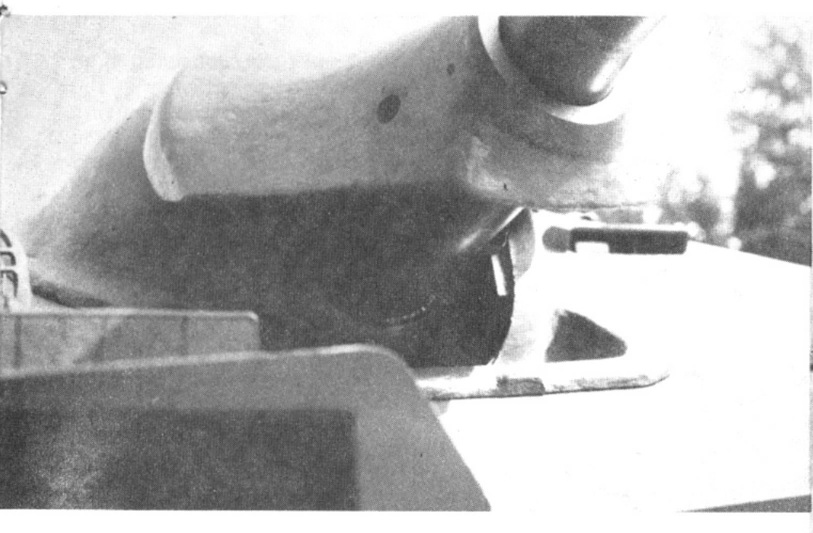


The photos, above and below, were submitted by one of our German readers, Herr Frank Ruppolt of Sulzberg. They illustrate an ex-Swiss G.13 tank destroyer, which is, of course, the Swiss version of the famous German Jagdpanzer 38(t) 'Hetzer'. This particular vehicle was returned to Germany in 1976, and it is now on display in the city of Ingolstadt. Most external differences between the G.13 and its wartime conterpart are fairly obvious, by Herr Ruppolt is interested in the function of the drum-shaped device positioned on the rear sloping plate. Can any reader provide information on this device and its purpose?





The two photos, above, show the fighting compartment (right) and the driver's area of the ex-Swiss G.13. Note the lack of space in the fighting compartment, especially along the right side of the vehicle. The area beneath the gun was for storage of main gun ammunition. In the driver's area, note how the steering handles are linked by transverse rods to the differential. The simple instrument panel is also noteworthy; the rectangular box covers the fuses, while the large round instrument is a speedometer. The clutch pedal is visible below the covered shaft for the left final drive.



# COLOR 'N CAMOUFLAGE

## Russian T34/85 Medium Tanks in Hungary, January-February 1945

by James Steuard

To the military vehicle historian, one of the most illusive of all camouflage and markings systems is that used on Russian armored vehicles during the Second World War. During the war, official press censorship in Russia raised a curtain of silence about most aspects of Soviet armored equipment, and this restrictive policy resulted in few good photographs of military equipment being published in either the west or the east. Almost all of the available photographs show obsolete vehicles which had been used in the early years of the war, and coverage of the last two years of the war has been sparse to say the least. In addition, the Russians have published virtually nothing in the post-war years to shed any light on vehicular camouflage and markings. Thus, historians have had very little to base their theories on...

Recently, a member of our research staff discovered a number of interesting German intelligence documents which concentrated on an objective study of the markings systems used on Russian equipment employed in the closing months of the war. This article is based on one of these German documents, which dealt with Soviet T34/85 medium tanks which were employed in Hungary during the early months of 1945.

The first marking system to be described in the German source documents covers T34/85 tanks used by the *7th Mechanized Corps* in the battles near the Hungarian town of Stuhlweissenburg in the first days of February, 1945. The system described below was taken from tanks destroyed by the German defenders, and verified from captured Soviet documents and prisoner-of-war interrogations. The *7th Mechanized Corps* consisted of three brigades: the *41st Guards Tank Brigade*, the *63rd Mechanized Brigade*, and the *64th Mechanized Brigade*. While each of the two mechanized brigades contained some tanks, the main tank strength of the corps was concentrated in the *41st Guards Tank Brigade*. The Germans captured tanks from the *41st* and *64th Brigades*, but no vehicles were recovered which could be identified as belonging to the *63rd Mechanized Brigade*. The information below concerning this brigade was obtained solely from prisoners, and was therefore somewhat suspect. According to prisoners, the *7th Mechanized Corps* received its first T34/85 tanks in mid-December 1944, with the *41st Brigade* receiving 50 tanks and the *64th Mechanized Brigade* getting 20 of the new vehicles. These tanks were brand new, being from the November 1944 production of Plant No. 112 in Gorki and Plant No. 183 in Nishni-Tagil. By the end of January of 1945, the Corps was fully re-equipped and ready for combat.

While many of the tanks of the Corps were camouflaged with whitewash paint applied over the standard Soviet Olive Green, it appears that a number of the Corps' tanks retained their Olive Green paint. No markings or numbers were applied to the hulls of the medium tanks, only to the sides of the tank turrets. The *7th Mechanized Corps* used an upward pointing arrow as a tactical symbol. When this symbol appeared by itself on the turret sides, the tank was assigned to the *41st Guards Tank Brigade*. According to prisoner interrogations, when the upward pointing arrow was positioned within a white circular ring, the tank was one of those assigned to the *63rd Mechanized Brigade*. With a rectangular outline around the arrow, the vehicle was assigned to the *64th Mechanized Brigade*. In all cases, the arrow was applied in white paint, and measured 10cm in height. The circular ring diameter was not known, but the outline style rectangle measured 30cm in height and 40cm in width.

T34/85 tanks of the *41st Guards Tank Brigade* carried three-digit identification numbers, painted in white above or beneath the tactical symbol described above. A rather simple system was employed within the three-digit numbers to indicate the battalion and the individual vehicle within the battalion, as follows: The first digit designated the battalion to which the vehicle was assigned... a '1' indicated the 1st Battalion, a '2' indicated the 2nd Battalion, and a '3' indicated the 3rd Battalion. The remaining two digits designated the tank within the batalion. While not verified, it is possible that the numbers 01 through 10 identified tanks in the 1st Company, 11 through 20 indicated tanks from the 2nd Company, etc. All numbers were painted in 20cm to 25cm high characters, by hand. Consequently, outlines and shapes were somewhat irregular.

In the *64th Mechanized Brigade*, the same style of three-digit number was painted to the rear of the rectangular symbol on the turret sides. The German document does not provide information regarding the meaning of the first digit, but an example provided was numbered in the low 600 series. It seems clear that the last two digits again designated the tank within its higher command structure.

In the fighting near Stuhlweissenburg, the tanks of the *7th Mechanized Corps* came into combat against elements of the *3.SS-Panzer-Division 'Totenkopf'*, supported by additional armor of the *I. Abteilung* of *Panzer-Regiment 24*. While the German units were eventually forced to retreat, the Soviets paid heavily for their victory, and by mid-February, the German intelligence reports indicated that the *7th Mechanized Corps* had suffered very heavily in losses of men and tanks.

The second system to be described in the German intelligence document was that utilized by the *23rd Tank Corps*. At this time, the *23rd Tank Corps* consisted of three Tank Brigades, the *3rd*, *39th* and *135th*. In the fighting near Seregelyes, and later near Börgönd, tank losses within the Corps were so heavy that surviving tanks of the *39th* and *135th Tank Brigades* were absorbed into the *3rd Tank Brigade*. On February 6th, the Corps had a total tank strength of 20 tanks, and by the following week, the Corps had practically ceased to exist. Prisoner interrogation revealed that the Corps had received their T34/85's in late December of 1944. Captured papers indicated that the *135th Tank Brigade* had received 60 tanks on December 24th, all of which were from November production and had been moved by train from Gorki and Nishni-Tagil.

From the fact that all markings were applied to tanks of the *23rd Tank Corps* in red paint, it would appear that most (if not all) of the tanks of the corps were painted with whitewash camouflage paint. Normal wear and tear would reduce this whitewashed scheme to a streaked appearance quickly, but the red markings would more clearly show-up against a white background.

The tactical marking of the *23rd Tank Corps* consisted of an upright diamond which was painted on the lower area of the turret overhang on the sides, as shown in the accompanying drawings. This diamond symbol measured 25cm high and 25cm wide. Within the diamond appeared a cyrillic letter which identified the Tank Brigade to which the particular tank was assigned. If this letter was a Russian 'V' (which looks like an English 'B'), the tank was assigned to the *3rd Tank Brigade*. If the Russian letter was a 'G' (which looks like an upside down and backwards 'L'), the vehicle belonged to the *39th Tank Brigade*. Finally, of the letter was a Russian 'D' (which resembles an embelished 'delta'), the tank was from the *135th*

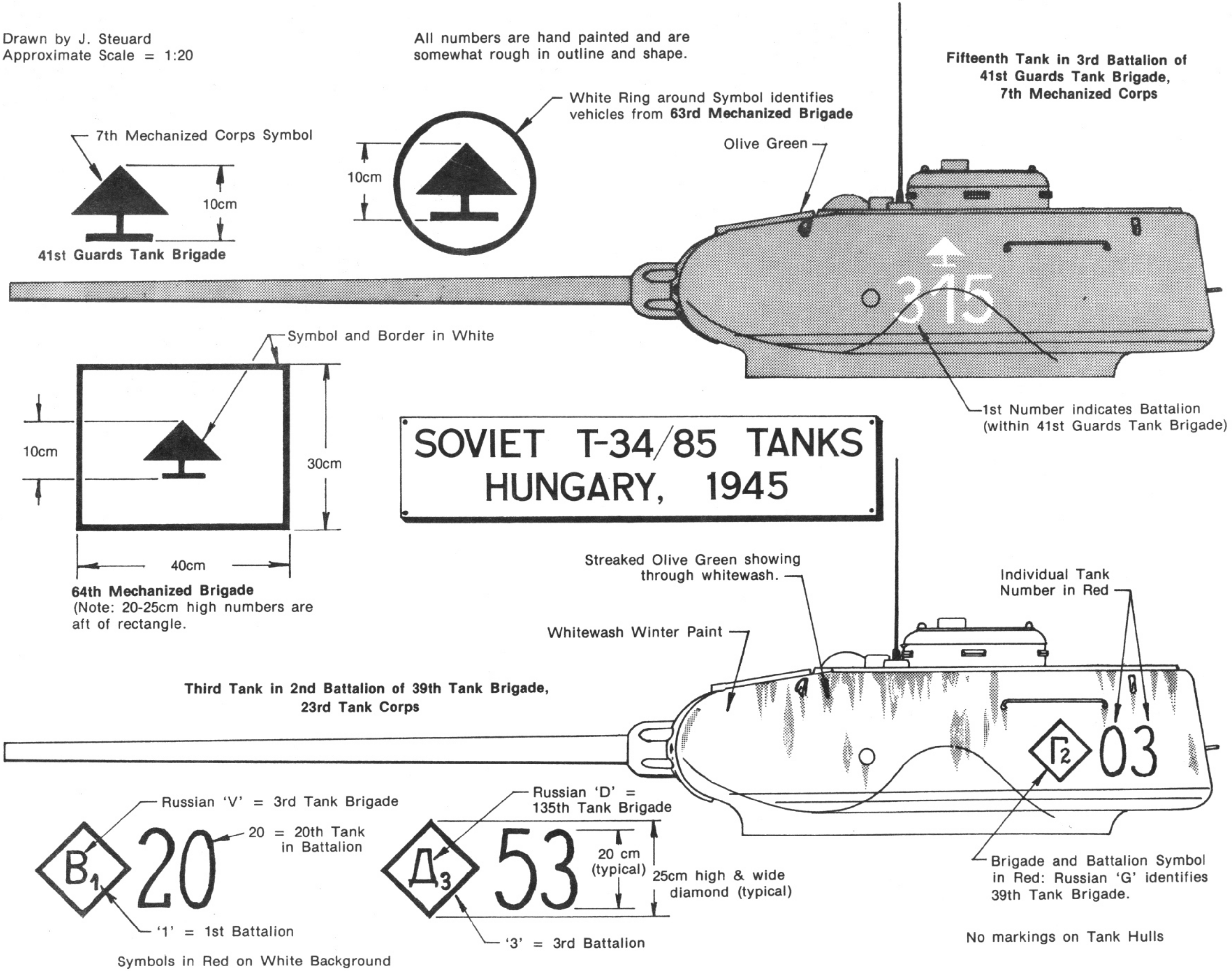
Continued on Page 47

SOVIET OLIVE GREEN

10 pts Floquil RR45 Pullman Green
5 pts Floquil RR12 Gray
2 pts Floquil RR31 Yellow

■

# SOVIET T-34/85 TANKS HUNGARY, 1945


Drawn by J. Steuard
Approximate Scale = 1:20
All numbers are hand painted and are somewhat rough in outline and shape.
Fifteenth Tank in 3rd Battalion of 41st Guards Tank Brigade, 7th Mechanized Corps
7th Mechanized Corps Symbol
10cm
41st Guards Tank Brigade
White Ring around Symbol identifies vehicles from 63rd Mechanized Brigade
10cm
Olive Green
315
1st Number indicates Battalion (within 41st Guards Tank Brigade)
Symbol and Border in White
10cm
30cm
40cm
64th Mechanized Brigade
(Note: 20-25cm high numbers are aft of rectangle.
Streaked Olive Green showing through whitewash.
Individual Tank Number in Red
Whitewash Winter Paint
Third Tank in 2nd Battalion of 39th Tank Brigade, 23rd Tank Corps
Г2
03
Brigade and Battalion Symbol in Red: Russian 'G' identifies 39th Tank Brigade.
No markings on Tank Hulls
Russian 'V' = 3rd Tank Brigade
B1
20
20 = 20th Tank in Battalion
'1' = 1st Battalion
Russian 'D' = 135th Tank Brigade
Д3
53
20 cm (typical)
25cm high & wide diamond (typical)
'3' = 3rd Battalion
Symbols in Red on White Background

## A Guide to...

# U.S. Army Vehicle Designations

## Part 2

by Norbert F. Yaggi

### T14 (7)

**(Car, Armored, T14)** Design study only. Not built. WWII.

**Car, Halftrack, T14** White/Autocar. WWII. To M3 Series. Later: Carrier, Personnel, Halftracked.

**Carrier, Cargo, T14** Same chassis as 155mm GMC, T6/M12. WWII. To M30.

**Carriage, Motor, 37mm Gun, T14** Same as T13, but gun fired aft. WWII.

**Tank Assault, T14** Resembled a larger, heavier Tank, Medium, M4 series. Several pilots only. WWII.

**Tank, Light, T14** Marmon-Herrington CTLS-4TAC. 8.4-ton, 2-man. Lend-Lease. WWII. See T16.

**Vehicle, Tank Recovery, T14** Based on: Tank, Medium, M4 series. WWII.

### T15 (4 or 5)

**(Car, Armored, T15)** Design study only. Not Built. WWII.

**(Carriage, Motor, 3-in Gun, T15)** On 6 x 6 Ford Chassis. Perhaps similar to T13 and T14. Not built. WWII.

**Carrier, Cargo, Light, T15** Full-tracked Studebaker Design. To M28. WWII.

**Vehicle, Mine Resistant, T15** Heavily Armored, Turretless hull of M4 Medium Tank on heavy suspension similar to T14. T15/T15E2 varied in detail. Late WWII.

**Vehicle, Mine Resistant, T15E3** As T15 but based on hull of Tank, Medium/Heavy, T23/M26. 1945

### T16 (8 or 9)

**(Car, Armored, T16)** Design study only. Not built. WWII.

**Car, Halftrack, T16** Autocar pilots. Similar to M2 APC but with overhead armor, longer tracks. 1942.

**Carriage, Motor, 4.5-in Gun, T16** On chassis with lengthened suspension of Tank, Light, M3/M5 series, hull similar to Tank, Light, M24 and unknown engine. May have used Tank, Light, T7 parts. WWII.

**Carriage, Motor, 4.5-in Gun, T16E1** Modified. Based on full chassis of Tank, Light, M24. WWII.

**Carrier, Universal, T16/T16E2** Ford-built version of British design. 13,893 built. WWII.

**Tank, Light, T16** Marmon-Herrington CTLS-4TAY. Same as T14 but turret on right hand side. WWII.

**Tractor, Heavy, T16** Based on Tank, Medium, M3 series.

**Truck, Armored, Halftrack, T16** Diamond T. Two pilots only. Built 1943.

**Vehicle, Armored, Utility, T16** Large bus-like APC with high fully armored hull, suspension of Tank, Medium/Heavy, M26 and engine, etc. of 76mm GMC. WWII.

### T17 (6 or 7?)

**Car, Armored, 6x6, T17** Ford design. Maybe 6x4? About 251 built. To M5 'Deerhound'. WWII.

**Car, Armored, 4x4, T17E1/T17E3** Chevrolet design. About 3478/3844 built. To M6 'Staghound' series. WWII.

**(Carriage, Motor, 75mm Howitzer, T17)** On chassis of Tank, Light, M5A1. Project only. Not built. WWII.

**Carriage, Motor, 75mm Howitzer, T17E1** As T17 but weapon in turret. To M8? Maybe, but see T47! WWII.

**Carrier, Radio, Halftrack, T17** Autocar unarmored 2½-ton Cargo Truck. Lend Lease to Ussr. WWII.

**Truck, Armored, Halftrack, T17** Similar to T6. 1 pilot each by Autocar and White. WWII.

**Vehicle, Command Post, T17** Similar to T16 Armored Utility Vehicle but higher superstructure, etc. was M44E1. WWII.

### T18 (6 or 10?)

**Car, Armored, Heavy, 8x8, T18 & T18E2** GMC design with 37mm and 57mm Guns. About 32 built. 'Boarhound'. WWII.

**Car, Armored, Heavy, 6x6, T18E1** Alternate GMC design. 1 pilot only. No other data. WWII.

**Carriage, Motor, 75mm Howitzer, T18** In massive cast hull on Tank, Light, M3 series. WWII.

**Carrier, Cargo, Light, T18** Marmon-Herrington design. Based on turretless open-toped chassis of Tank, Light (Airborne), M22. Probably same vehicle.

**Tractor, Light (Airborne), T18** Marmon-Herrington Design. Based on turretless open-topped chassis of Tank, Light (Airborne), M22. Probably same vehicle.

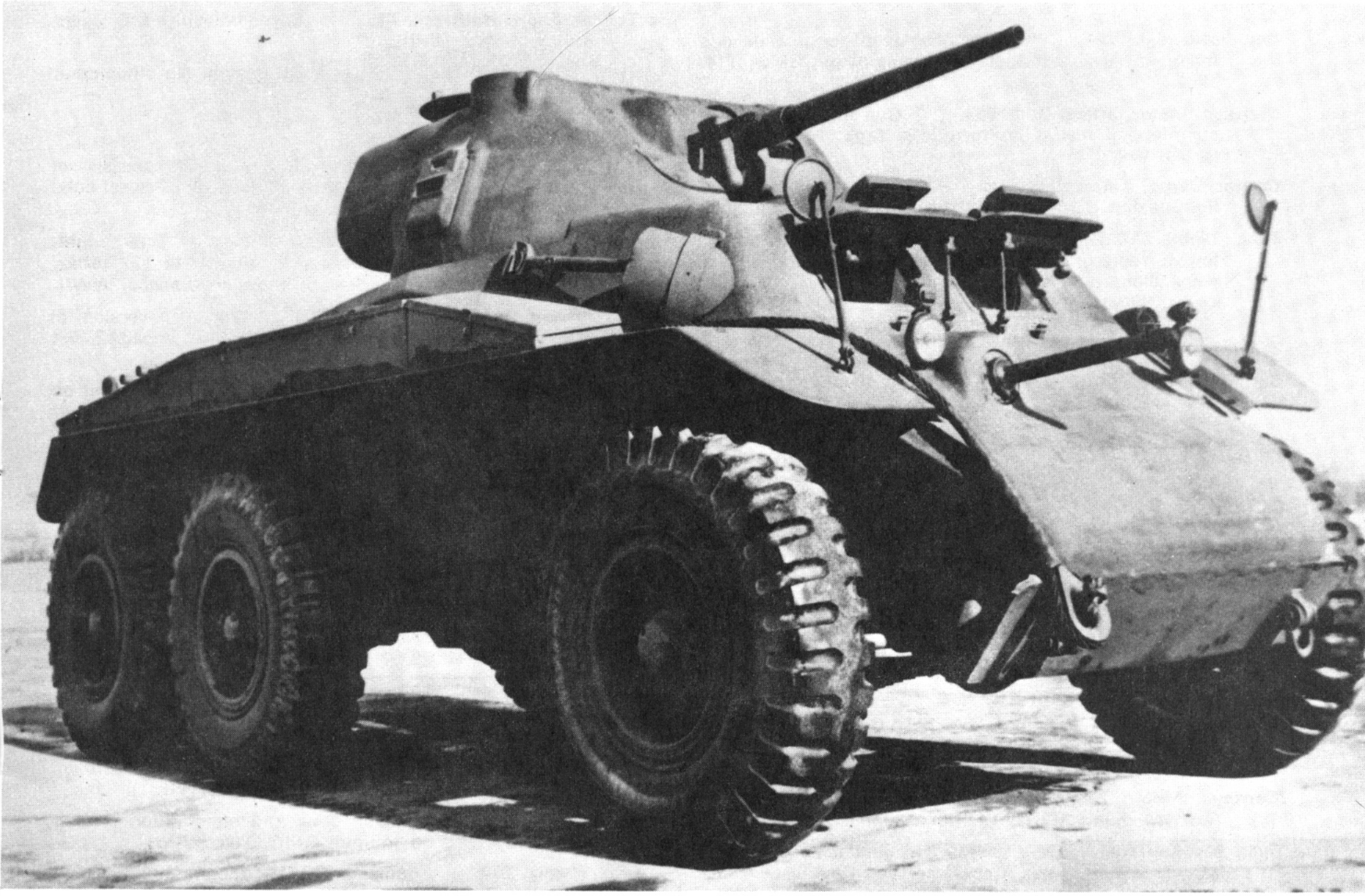
**Carrier, Instrument, Halftrack, T18.** No other data! WWII.

**Carrier, Personnel, Armored, T18/T18E2** IHC design based on components of Tank, Light M41. Smaller than M44. To M75 and derivatives. 1950/1954.

**Vehicle, Infantry, Armored, T18/T18E2** IHC design based on components of Tank, Light M41. Smaller than M44. To M75 and derivatives. 1950/1954.

**Vehicle, Utililty, Armored, T18/T18E2** IHC design based on components of Tank, Light M41. Smaller than M44. To M75 and derivatives. 1950/1954.

**Self-propelled Mount, 75-mm AA Gun, T18** Rear unarmored mount on chassis of Tank, Light, M41. A very low T-number for such a late vehicle; perhaps T18 refers to armament only. Post WWII. Maybe on M24?.



Photo, Above: **Car, Armored, 6x6, T17** is shown in this Aberdeen Proving Ground identification photo. Credit: U.S. Army

### T19 (4)

**Car, Armored, Light, 6x6, T19/T19E1** Chevrolet design; replacement for T18E1; low silhouette. Developed into T27/M28. Also 75mm GMC, T66. WWII.

**Carriage, Motor, 105mm Howitzer, T19** On Halftrack APC, M2 or M3? Various shields. WWII.

**Carrier, 81mm Mortar, Halftrack, T19** White pilot Halftrack APC, M2 or M3? To M4 and M21 series. WWII.

**Truck, Armored, Halftrack, T19** Mack. Two pilots only. Improved Design. 1942/1943.

### T20 (5)

(**Car, Armored, T20**) Comercial 8-wheel design. Independent suspension, Gas-electric drive. 4 pilots ordered, then cancelled. Also a 105mm HMC version considered. 1942/1943.

(**Carriage, Motor, 3-in Gun, T20**) On chassis of Tank, Light, M3 series. Project only; not built WWII.

**Tank, Medium, T20/T20E3** Low silhouette development of M4 series. Various guns, suspensions, etc. All by Fisher with Ford V-8 GAN and GM Torquematic transmission. T20E3 to M27B1. WWII.

**Tractor, High-speed, T20** Alternate design to T21. No other data. WWII. Was Tractor, Medium, T20.

**Truck, 8—ton, 8x8, Cargo, T29/T20E1** Cook Brothers and Corbitt alternate designs. Pilots only. WWII to 1950's.

### T21 (5)

**Car, Armored, Light, 6x6, T21** Studebaker design. Was Carriage, Motor, 37mm Gun, T43. 1941/1942.

**Carriage, Motor, 37mm Gun, T21** Mounted with shield on Dodge T214-WC55 Truck, ¾-ton, 4x4. To M4, then M6, WWII.

**Carrier, 4.2-in. Mortar, Halftrack, T21** White built. Similar to T19. Also T21E1? WWII.

(**Tank, Light, T21**) Based on components of Tank, Medium, T20 series. Not built. WWII.

**Tractor, Medium, T21** IHC design. Used suspension of Tank, Light, M3 and M5 series. To Tractor, High-speed, 13-ton, M5/M5A4 series. WWII. to 1950's.

### T22 (5 or 7?)

**Car, Armored, Light, 6x6, T22** Ford integral hull/chassis multi-purpose design. Note change in nomenclature. T22E2 was improved version. To GAK—M8. WWII. 6x4?

**Car, Armored, Light, 4x4, T22E1** Alternate Ford design. One pilot only. 1941/1942.

**Carriage, Motor, 37mm Gun, T22** Ford integral hull/chassis multi-purpose design. Same as **Car, Armored, Light, 6x6, T22** above. T22E2 was improved version. WWII. 6x4?

**Carriage, Motor, 37mm Gun, T22E1** Alternate Ford design. See **Car, Armored, Light, 4x4, T22E1** above.

**Carrier, Cargo (Light), T22/T22E1** Same chassis as 4.5-in GMC, T16/T16E1 respectively. Pilots only. WWII.

### T24 (4)

**Car, Scout, 6x6, T24** Willys MB 'Jeep' lengthened and modified. Armored. Same chassis as 37mm GMC, T14. 1942.

**Carriage, Motor, 3 inch Gun, T24** Gun mounted high in open-topped mount on turretless **Tank, Medium, M3** series. WWII.

**Carrier, Cargo, Amphibious, T24** Studebaker full-tracked light design. To M29/M29C 'Weasel'. WWII to 1950's.

**Tank, Light, T24/T24E1** Cadillac/Massey-Harris design for M5 replacement. Low silhouette, 75mm, torsion bar suspension, twin Cadillac engines. To M24 'Chaffee' series. WWII to 1950's.

### T25 (4)

**Car, Scout, 4x4, T25/T25E2** Willys/Smart MA and MB 'Jeeps' with various open-topped armor. Several pilots. 1941/1942.

**Carriage, Motor, 105mm Gun, T25** AA Gun in special turret on chassis of **Tank Medium, M3** series. WWII.

**Carrier, Cargo, T25** Based on components of **Tank, Medium/Heavy, M26** series. WWII? See: 155mm GMC, T83.

**Tank, Medium, T25/T25E1** Heavier development of T23 series, but 90mm gun. Various transmissions and suspensions. About 40 pilots built by Fisher, Jan/May, 1944.

### T26 (5)

**Car, Armored, Utility, 6x6, T26** Ford GAK. Same chassis as **Car, Armored, Light, 6x6, T22E2/M8** 'Greyhound'. To M10, then M20. WWII. No turret.

**(Carriage, Motor, 75mm Howitzer, T26)** On chassis of **Tank, Medium, M3** series. Not completed. WWII.

**Tank, Medium/Heavy, T26/T26E5** Similar to T25, but heavier armor, wider tracks, torsion bar suspension, torquematic transmission, etc. T26E3 to M26 'Pershing' series. T26E2 with 105mm howitzer in turret; to M45. WWII to 1950's.

**Tractor, Snow, Halftrack, T26/T26E4** Allis-Chalmers light agricultural tractor with engine and drive of standard 'Jeep'. T26E4 to M7. WWII.

**Truck, 12-ton, 8x8, Various, T26/T26E4** Sterling design. **Tractor, Cargo**, etc. Variants. 1943 to 1950's.

### T27 (3)

**Car, Armored, Light, 8x6, T27** Studebaker 7-ton design in competition with T28. One pilot only? 1943/1944.

**Carriage, Motor, 75mm Gun, T27** Gun firing forward on chassis of Studebaker 1½-ton, 4x4 'Swamp Buggy'. WWII.

**Carrier, 81mm Mortar, T27/T27E1** Firing forward in turretles, open-topped chassis of **Tank, Light, M5/M5A1** series. Pilots only. WWII.

### T28 (5)

**Car, Armored, Light, 6x6, T28** Chevrolet; improved T19. Production by Ford. Planned as M38 'Wolfhound'. Only one pilot or several pre-production built? WWII.

**Carriage, Motor, Combination Gun, T28/T28E1** One 37mm and two .50-cal AA Guns on differing mounts and shields on chassis of Halftrack APC, M2 or M3? To M15/M15A1. WWII.

**Tank, Heavy, T28** 105mm gun in huge, squat, heavily armored turretless chassis, using components of **Tanks, Medium, M4A3E8 and M26**. To **Carriage, Motor, 105mm gun, T95.** Two built. 1945/1950.

**Tractor, Snow, Halftrack, T28** Based on Willys MB 'Jeep' components. WWII.

**Truck, 8-ton, 6x6, T28** Kenworth design. No other data. WWII.

### T29 (7)

**(Carriage, Motor, 75mm Gun, T29)** On chassis of **Tank, Light, M3** series. Maybe a Howitzer? Project only; not built. WWII.

**Carrier, 81mm Mortar, T29** On chassis of **Tank, Light, M5** series. Maybe 4.2-in mortar? Similar to T27 series, but more compact mortar and more crew space. WWII.

**Carrier, Personnel, Halftrack, T29** IHC conversion of M3 as replacement for both M2 and M3. To M3A2, but no production. 1943.

**Tank, Heavy, T29/T29E3** 105mm gun in huge turret on enlarged 65- to 69-ton chassis with torsion bar suspension like **Tank, Medium/Heavy, M26** series. 1945.

**Tractor, Snow, Halftrack, T29/T29E1** Based on Willys MB 'Jeep' components. similar to T29. 1943. Pick-up type body.

**Trailer, Semi, T29** Used with **Tractor, Heavy, T22.** No other data. WWII.

**Truck, 20-ton, 6x6, Utility, T29/T29E1** Sterling design. T29E1 to 25-ton, T46. 1946.

### T30 (6)

**Car, Chemical, 6x6, T30** 7.2-in multiple rocket launcher on turretless **Car, Armored, 6x6, Light, M8**. T30 may refer only to launcher itself. WWII.

**Carriage, Motor, 75mm Howitzer, T30** On chassis of **Halftrack APC, M3.** White built 500. WWII.

**Carrier, Cargo, T30** Gun crew and ammunition carrier for, and based on 155-mm GMC, T83. WWII.

**Tank, Heavy, T30** Same as T29, but 155mm gun in modified turret. Engine variation in T30E1. About 10 built. Late WWII.

**Trailer, Semi, T30** Used with **Tractor, Heavy, T22.** No other data. WWII.

**Truck, 8-ton, 6x6, Cargo, T30** Kenworth design. Pilots only. No other data. WWII.

### T31 (5)

**(Carriage, Motor, Multiple Gun, T31)** Four .50-cal MG in Maxson turret on halftracked APC, M3. Project only. WWII.

**Carrier, Cargo, T31** Originally based on **Tank, Medium, T26E1**, but used some M4 components. WWII.

**Carrier, Personnel, Halftrack, T31** IHC pilot for improved M5A2, but no production? WWII.

**Tank, Demolition, T31** 7.2-in rocket launcher and two Flame throwers in massive cast turret on **Tank, Medium, M4** series. Also called **Vehicle, Engineer, Armored, T94.** WWII.

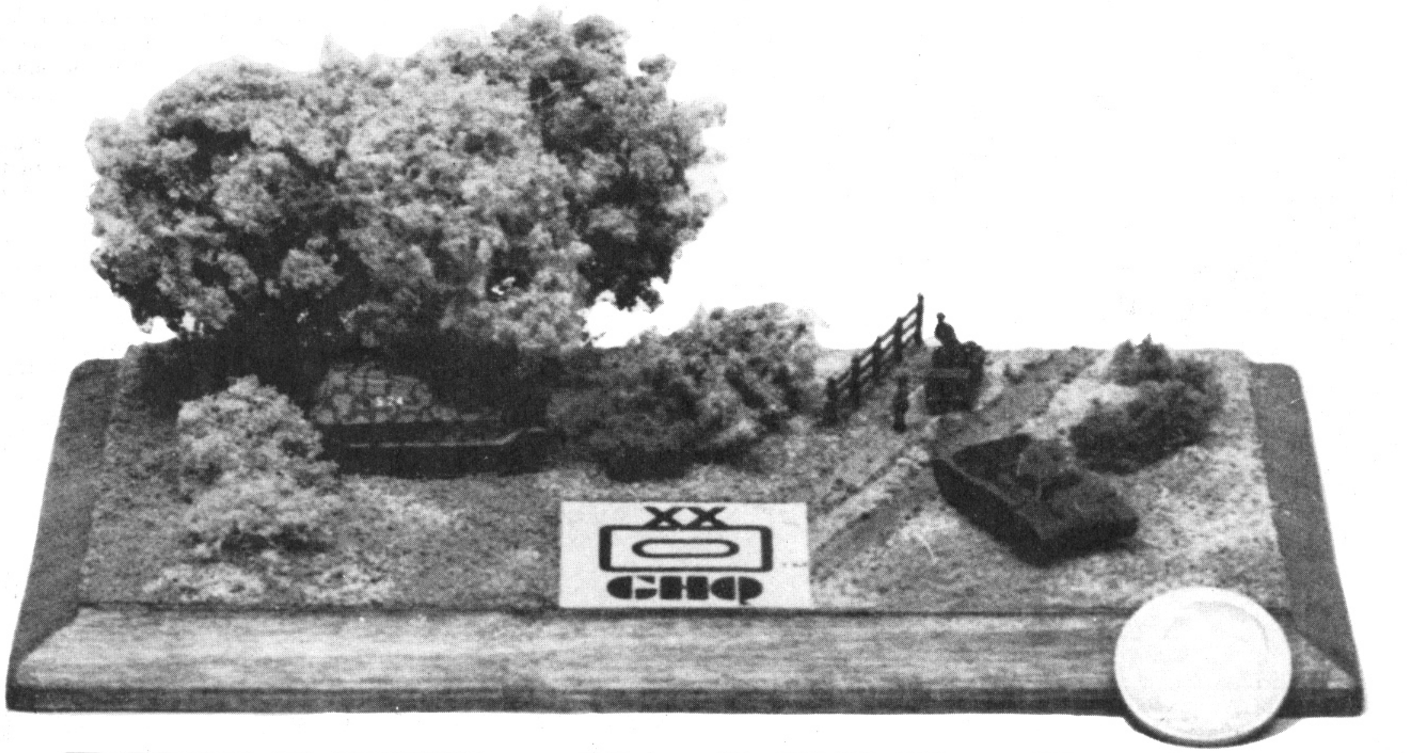
**Trailer, Semi, T31** Used with **Tractor, Heavy, T22.** No other data. WWII.

### T32 (2)

**Carriage, Motor, 105mm Howitzer, T32** In open-topped mount on chassis of **Tanks, Medium, M3 and M4** series. To M7/M7B2 'Priest' series. WWII.

**Tank, Heavy, T32/T32E1** Lengthened and more powerful development of **Tank, Medium/Heavy, M26.** WWII.

**To Be Continued**



# BUILDING A 1:285 SCALE ARMOR DIORAMA

### by Joe Burniece
### Production Engineering Chief, GHQ

Limiting a 'micro-diorama' to 1:285 scale probably wouldn't be right, since wargaming figures in the 20-30mm range have been used for years in military dioramas, such as Edward Suren's **Battle of Rourke's Drift'**. We've also seen HO-scale vehicles placed in very effective action settings. But the popular view of a diorama is, undoubtedly, a scene in which one or more large-scale (1:48th, 1:35th, even 1:24th) plastic models of tanks, trucks, aircraft, and figures have been used. These dioramas are made possible by combining the excellent plastic model kits on the market with the patience and skill of hobby craftsmen.

'Micro-dioramas', such as we have developed them, are much, much smaller. This is because our micro-dioramas were originally created to exhibit our 1:285 scale MICRO ARMOUR* in realistic settings. Over the past year-and-a-half, these miniature AFV models have shown up in tree-lines, sunken roads, desert *nullahs*, snow-covered steppes, and crooked village streets, each tank or truck in perfect scale with its surroundings. In every case, these small setpieces have been effective, exciting, and noticeable, attracting numerous comments wherever they have been displayed.

So here are some of the how-to's for creating micro-dioramas of your own, along with some comments about the economics of 'micro' versus 'macro'; small versus large.

*Economy of scale.* Working up a micro-diorama gives you the chance to save yourself both time and money, compared to making dioramas with larger-scale plastic kits.

A really first-class 1:35th-scale plastic model kit costs anywhere from $9 to $15, or even more. A large diorama base, purchased in a hobby shop or art supply store, is currently running in the $4 to $5 range. So, just in terms of the front-end cost, not counting paint, miniature figures and supplies, you're already moving into the 'expensive' category.

Next, there's the time — with a truly-detailed, precisely-executed, large-scale diorama, you can spend days or weeks constructing, painting, and detailing. (But then, building a diorama of *any* size is a labor of love, even if a lot of time and money is spent.)

However, what if you could get an inch-long metal casting of, say, a Tiger I. that had almost all the detail and visual appeal of the 12-inch to 15-inch model? Might that not be worth showcasing?

We think so. First of all, MICRO ARMOUR and other 1:285 scale AFVs cost about $.75 apiece, often less. Secondly, a 3-inch by 6-inch base, more than large enough for an attractive micro-diorama, costs around $.89 these days. And thirdly, the appeal — and the challenge — of trying to do as well with a very small diorama as with a large one is very definitely a factor.

Fourthly, with a micro-diorama you can show a great deal more than you ever could before. Two large-scale plastic models on one board strains the limits of patience at times, not to mention the storage and display space involved. A micro-diorama can be used to show several tank platoons in action, or even to present the whole panorama of a fire-fight.

With a micro-diorama, the craftsman can move his concept from the realm of a simple showpiece to a fully informative (or narative) display. And so can you — largely due to the scale being reduced from 1:35th or 1:48th to 1:285. An entire range

*FIGURE 6 (Above): The completed diorama. Notice how sponge foam foliage has been added to build the elevation of the micro-diorama from front to back, and from lower right to upper left corners. Now that the masking tape has been removed, edges are uniform and complimentary to the miniature diorama.*

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MICRO ARMOUR is a registered trademark of GHQ

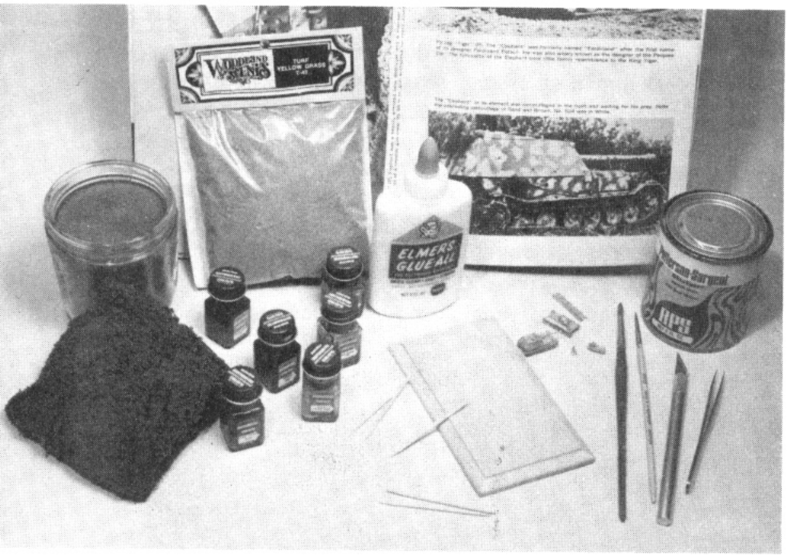


*FIGURE 1. A 3-inch by 6-inch wood base and a picture of a German* Elefant *are the beginnings of the micro-diorama example used here. A MICRO ARMOUR* Elefant *will be used to begin the concept, along with the T34 and the Jeep — all in 1:285th scale.*

of 1:285 scale World War II and Modern AFVs, artillery, and softskins is available for your use. You can duplicate, three-dimensionally, the photos of actual engagements, or you can create your own situations in micro-miniature. Most important, you can do it with less money and less time than ever before.

*A starting point.* What follows is a description of how one micro-diorama was put together. Our example is drawn from the famous WWII photo taken on the eastern front in autumn of 1943, photographed during the withdrawal from the Kursk battlefields, and showing the 88mm-gunned *Elefant* hidden in dense foliage.

This is where we'll start. But to do an effective diorama in any scale takes knowledge, and we not only want to duplicate the appearance of the German AFV, but also the character of the surrounding terrain. We can also demonstrate what the *Elefant* was confronting; in otherwords, we can expand greatly on the original picture because we're using the smaller 1:285 scale.

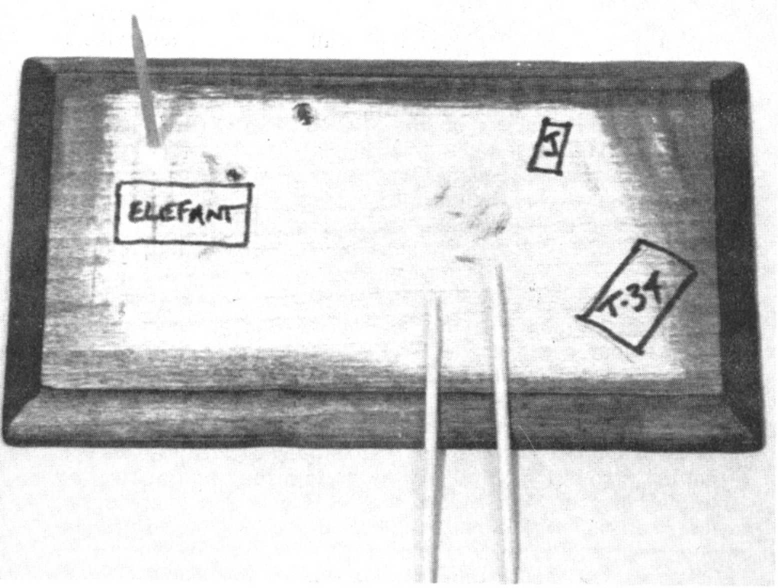


*FIGURE 2. The base is stained first, so that this chore isn't added to the detail work at the end. Toothpicks are set in 1/8-inch holes, and their bases thickened with white glue. The positions of the AFV's have been drawn in.*

Our 'confrontation' in the micro-diorama involves a brewed up Russian T34, and a Lend-Lease Jeep complete with Soviet infantry; this is the scene we've chosen to create. No matter what you select, the creative practice remains the same, and this is what we'll cover next.

*Begin at the bottom.* A 3-inch by 6-inch wood base is used for the example — more than enough for the subject of the diorama. In choosing a size, go for the base that will give you good scope, yet still be small enough to handle easily (see Fig. 1). First, use a commercial stain to cover the wood base. Do it now, and let it dry. After the top surface has been covered by the diorama, you won't have to go back and attempt to stain the base edges.

Next, position the trees (see Fig. 2). In the example, we've used round wood toothpicks successfully, pegged and glued into 1/8-inch diameter holes. Make the holes deep enough to give the toothpicks good, solid support. The tree bases were next thickened with white glue, which was allowed to dry solid. While tree tunks — and other similar foliage frameworks — are drying, determine where you wish to place your roads, buildings, and vehicles. Sketch in these positions directly on the diorama base surface.

If your micro-diorama is to have some distinctive elevations, such as ours, now is the time to build these up. Use thin sheets of styrofoam or cardboard, gluing them stack-fashion on the base in their proper positions. Next, cover these with glue, and allow them to dry hard. (See Fig. 3)

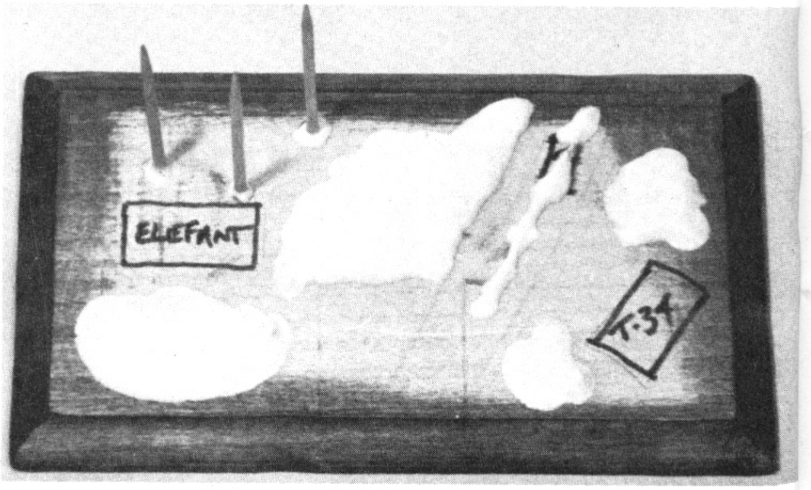


*FIGURE 3. The gentle elevations have been built up. using thin sheets of styrofoam covered with white glue. These will form groundswells on the diorama which help to make the terrain appear more realistic.*

The next step is to mix up Hydro-Cal plaster-of-paris, according to the directions for a 'thick' mixture. Spread this paste evenly over the entire diorama surface. You can mask the edges of the base with masking tape to avoid spillovers (see Fig. 4). A watchpoint: micro-dioramas cannot realistically handle a lot of 2-inch high knolls and hills. Don't overbuild the terrain elevations; gentle slopes and slightly sunken roads convey the messages here.

Now, let the plaster of paris dry slowly and thoroughly. Don't rush this stage, or the plaster will crack. If you do get cracks, fill them up with white glue and allow them to dry.

The plaster-drying period will give you time to construct and paint the dioramas structures, if any — houses, barns, wells, stone or wooden fences. Position these on the diorama's base plaster. Structures should be sitting into the surface of the 'earth' slightly.

*Painting the base.* The paint scheme should be matched with the terrain you're displaying. Here too, we'll go through a number of steps, starting with the tree trunks. Paints should be flat enamels — in our construction, we've had good results using Pactra colors. For our example, the trees are dark. Oaks and elms predominated in this geographic area, so the tree trunks were painted in medium and dark browns, adding a

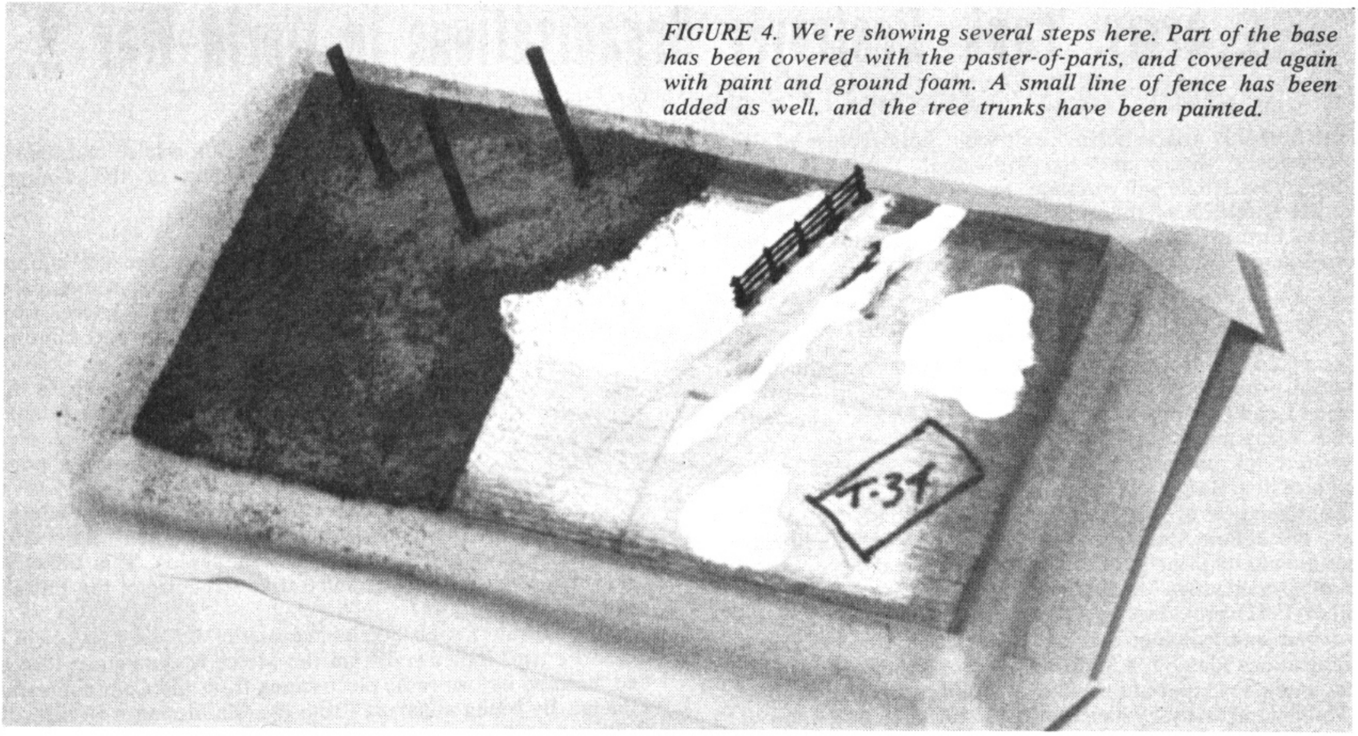


*FIGURE 4. We're showing several steps here. Part of the base has been covered with the paster-of-paris, and covered again with paint and ground foam. A small line of fence has been added as well, and the tree trunks have been painted.*

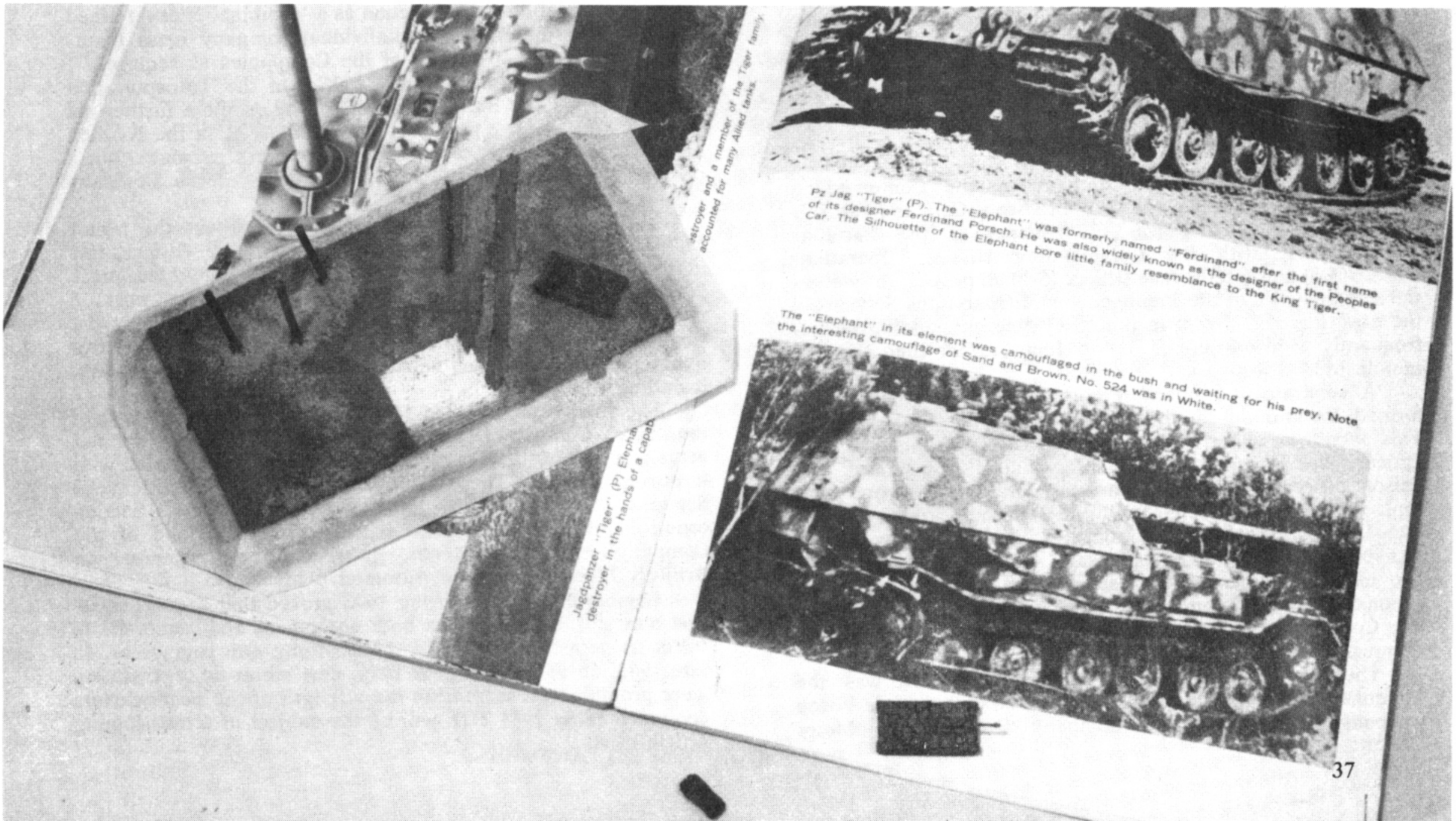
black for shadows, and dark gray highlights. As we've said, it's important to match the terrain plan closely. Our best source is *National Geographic* magazine, which has lots of spectacular color photography. Using this and similar sources, we can find out that evergreen trunks appear dark gray-green at the base, shading to light green-brown higher up; desert tree trunks are often a pale green or very light brown; birch trunks are slender, with a grayish-white color. No matter what the size of the diorama, it's these types of details that make the viewer go, 'Ahh.'

Next, the base surface should be painted in its basic earth color. What is required here is a heavy, viscous paint; in other words, one that's very slow-drying. To get this, allow enamel flat paints to settle in their jars. The pigment will seperate from the thinner. Then, carefully, pour the thinner off, so that you are left with a paste-like, paint substance. The object here is not only to color; we will use the paint as a colored glue to hold the base textures in place.

Spread the paint thickly over the entire surface of the plaster. Work it carefully around tree trunks and the edges of

Continued on Page 22

*FIGURE 5. In this view, the base has been totally plastered over, painted, and foamed-in — notice that no foam appears on the road to the left of the burned-out T34. Also, we've mottled the ground cover colors to give a more realistic effect. The* Elefant *already has its sand-and-brown camouflage.*


stroyer and a member of the Tiger family
accounted for many Allied tanks.
Jagdpanzer "Tiger" (P) Elepha
destroyer in the hands of a capab

Pz Jag "Tiger" (P). The "Elephant" was formerly named "Ferdinand" after the first name of its designer Ferdinand Porsch. He was also widely known as the designer of the Peoples Car. The Silhouette of the Elephant bore little family resemblance to the King Tiger.

The "Elephant" in its element was camouflaged in the bush and waiting for his prey. Note the interesting camouflage of Sand and Brown. No. 524 was in White.

# U.S. Army Tank Destroyer Organizations in World War 2.

by William E. Platz

Part I. of this article series dealt with the structure of the Tank Destroyer Group and the individual Tank Destroyer Battalions. This article will examine, in closer detail, one of the component elements of these Battalions — the Headquarters Company. Future parts will also provide coverage of the Reconnaissance Company and the Gun Companies.

## The Tank Destroyer Battalion
## Headquarters & Headquarters Company, 1941-43

Command, control, maintenance, and support of the Gun Companies: this was the mission of the Tank Destroyer Battalion Headquarters Company. In effect, the company provided a command post, a communications center, and a mobile base of operations for the other, often scattered, sub-units of the Battalion.

The structure of the Headquarters Company remained constant throughout the war, although there were significant changes among its principal elements. The original organization (Table of Organization & Equipment (TOE) 18-26, dated 15 December 1941) provided for a complement of 6 officers and 158 enlisted men, divided among a Headquarters Section, a Communications Platoon, a Staff Platoon, a Motor Maintenance Platoon, and a Transportation Platoon. The functions of each of these Platoons is fairly obvious, with the possible exception of the Staff Platoon. This sub-unit provided personnel for the various 'Staff' sections; i.e., S-1 (or Personnel), S-2 (Intelligence), S-3 (Plans and Operations) and S-4 (Supply).

The Battalion's Headquarters was not a part of the Headquarters Company. It consisted of 6 officers: a Lieutenant Colonel — the Commanding Officer, a Major — Executive Officer, and 4 Captains — Staff Officers S-1, S-2, S-3 and S-4. These officers relied on the Headquarters Company for their transportation, messing and administration, although it should be stressed that they were not part of the Company.

During 1942, the Tank Destroyer Battalion Headquarters Company was streamlined and reduced in size to 7 officers, 1 warrant officer, and 113 enlisted men, as outlined in TOE 18-26 dated 27 January 1943. It was this functional organization that was in use at the time of the North African campaign (November 1942 through May of 1943). The Headquarters Company retained the sub-units listed above, but was divided functionally into Command and Service Echelons — and each of these was further sub-divided into several groups. An organization chart of this Company is shown opposite, arranged by tactical function rather than by administrative control.

### The Command Echelon

The first element of the Company was the 'Commander's Group', composed of two M3A1 White Scout Cars and two solo motorcycles. This unit was the nucleus of the Battalion Headquarters, with the Commanding Officer, Operations Officer (S-3) and Intelligence Officer (S-2) all present, as well as the senior NCO's of the Intelligence and Operations Sections of the Staff Platoon. (Note: In practice, the Commanding Officer frequently used one of the ¼-ton Jeeps rather than the less mobile M3A1 Scout Car.)

A separate 'Command Post Group' of seven vehicles formed the hub of the Battalion's communications network. This party was under the command of the Battalion Executive Officer, and included the S-1 (Personnel) staff officer, two liaison officers in ¾-ton command cars (which were later replaced by ¼-ton Jeeps), and the Communications Officer. Two ¾-ton weapons carriers from the Communications Platoon transported the Battalion's Message Center, and there were two motorcycle messengers assigned for personal communications purposes. Often, one of these messengers accompanied the Commander's Group to convey messages back to the Command Post.

The final portion of the Command Echelon was the Maintenance Group. This element consisted of the single ¾-ton weapons carrier from the Company Headquarters Motor Maintenance Section. Its assigned mission was to maintain and repair (as needed) the twelve vehicles of the Command Echelon.

### The Service Echelon

The Service Echelon was composed of the six sub-units which made up the Battalion Trains. This Echelon took care of the non-command functions of the Headquarters which, although mundane, were essential to smooth and continued operations of the Battalion. The first of the Service Echelon's units was the Administrative Section with three vehicles. This section was under the command of the Headquarters Company Commandant (which was another title given to the Headquarters Company Commander). Included here were a portion of the Company's Headquarters Section, as well as the Administrative (or S-1) Section of the Staff Platoon. In addition, the Personnel Section truck carried the Company Clerks from each of the Battalion's four 'Line' Companies. This effectively concentrated the entire administrative structure of the Battalion into one location.

The 'Radio Repair Section' consisted of a single vehicle — a 2½-ton truck borrowed from the Motor Maintenance Platoon, and manned by two radio electricians from the Communications Platoon. By being separate (from the Maintenance Group), this Section was free to move as required on repair missions.

The 'Supply Section' was under the command of the Battalion's Supply Officer (or S-4), and it consisted of the 1 officer and 8 enlisted men, transported in two ¾-ton weapons carriers. The supplies and equipment were carried by the Transportation Platoon.

The fourth and largest element of the Service Echelon was the Transportation Platoon, which was itself divided into four Sections. Platoon Headquarters consisted of the Battalion Transportation Officer (a 2nd Lieutenant), a Staff Sergeant 'Truckmaster', his assistant, and two drivers, transported in two ¼-ton Jeeps. This Platoon Headquarters controlled a train of fourteen 2½-ton trucks, each of which pulled a 1-ton trailer.

Five of the Transportation Platoon's trucks formed the Kitchen Section, with the Mess Sergeant, Cooks and Kitchen Police of each company riding with a Transportation Platoon driver. This Section could function as a 'combined mess' to feed the entire Battalion, or the individual company mess teams could transport food to each of the Companies as required.

Another three 'Deuce-and-a-half's' of the Transportation Platoon carried the Battalion's gas and oil, while a further six vehicles were used to transport ammunition. As in the Kitchen Section, these vehicles were also used to carry personnel not a part of the Platoon — to wit, ten Privates of the Company Headquarters Section.

The next element of the Service Echelon was the Motor Maintenance Platoon. Under the Battalion Motor Officer, this unit was provided with a mobile workshop mounted on a 2½-ton truck, a 10-ton heavy wrecker for recovery work, a spare parts truck, and a ¾-ton weapons carrier to carry the Platoon's left-over personnel. The Platoon was divided into two maintenance crews, each capable of most automotive repairs, including welding.

The final component of the Service Echelon consisted of the 'Line' Company Maintenance Sections. These were not actually a part of the Headquarters Company, but traveled with it during combat. There were three of these Maintenance Sections, one from each of the Gun Companies. Each Section consisted of a single 2½-ton truck, under command of the Company's Supply Sergeant, transporting an Armorer, an Artillery Mechanic and an Automotive Mechanic.

Combat experience during 1943 proved that this organization was still a bit short on both equipment and personnel to fulfill its support mission for the far-flung gun companies. In late 1943, an again in March 1944, new tables or organization were promulgates, increasing the strength of the headquarters company. (This 1944 TOE will be the subject of a forthcoming article.)

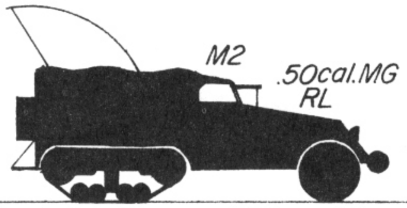
# U.S. ARMY TANK DESTROYER BATTALION HEADQUARTERS AND HEADQUARTERS COMPANY

*TOE 18-25 and TOE 18-26, dated January 27, 1943*

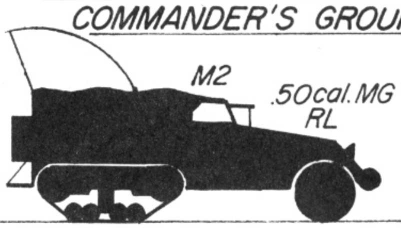
## COMMAND ECHELON
### COMMANDER'S GROUP

1 EM Messenger (C)

1 EM Messenger (C)

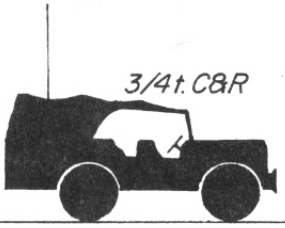


1 Capt. Intelligence Officer (P)
1 T/Sgt. Intelligence NCO (P)
1 EM Clerk (C)
2 EM Radio Operators (C)
1 EM Driver (C)

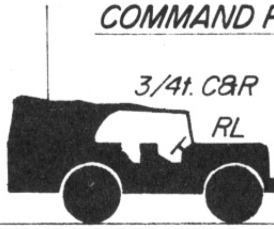


1 Lt.Col. Battalion Commander (P)
1 Capt. Operations Officer (P)
1 T/Sgt. Operations NCO (P)
1 EM Stenographer (C)
1 EM Radio Operator (C)
1 EM Driver (C)

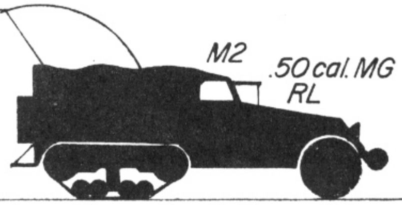
### COMMAND POST GROUP



1 Lieut. Liaison Officer (P)
1 EM Radio Operator (C)
1 EM Driver (C)



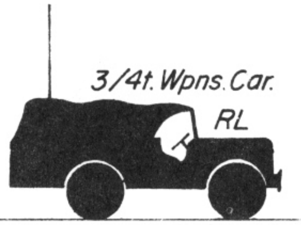
1 Lieut. Liaison Officer (P)
1 EM Radio Operator (C)
1 EM Driver (C)



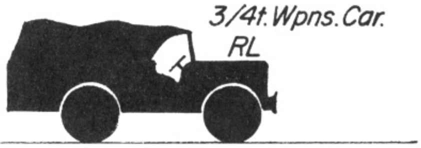
1 Major Executive Officer (P)
1 Capt. Personnel Officer (P)
1 M/Sgt. Sergeant Major (P)
1 EM Orderly (C)
1 EM Radio Operator (C)
1 EM Driver (C)

1 EM Messenger (C)

1 EM Messenger (C)

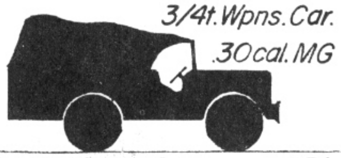


1 Lieut. Commo Officer (P)
1 T/Sgt. Radio Sergeant (P)
1 EM Radio Operator (C)
1 EM Driver (C)



1 Sgt. Message Center Sgt. (C)
1 Cpl. Panel & Code Cpl. (C)
1 EM Clerk-Driver (C)

### MAINTENANCE GROUP



1 S/Sgt. Motor Sergeant (P)
2 EM Auto Mechanics (C)
1 EM Armorer (C)
1 EM Mechanic-Driver (C)

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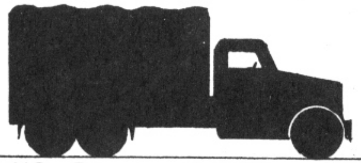
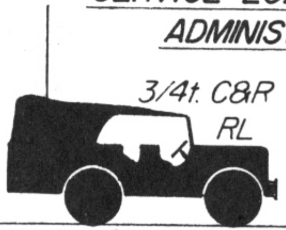
## SERVICE ECHELON

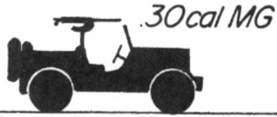
### ADMINISTRATION SECTION



1 WO Personnel Officer (P)
1 T/Sgt. Personnel Sgt. (P)
1 Cpl. Hq.Company Clerk (C)
1 EM Clerk (C)
1 EM Driver (C)
(See Note 1.)

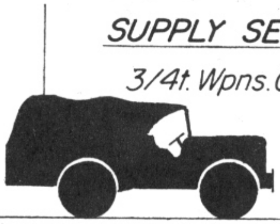


1 Capt. Hq. Company Commander (P)
1 M/Sgt. First Sergeant (P)
1 S/Sgt. Supply Sergeant (P)
1 EM Radio Operator (C)
1 EM Radio Oper.-Driver (C)

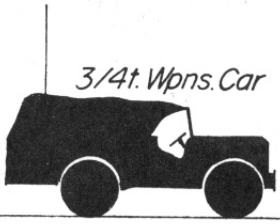


1 Lieut. Executive Officer (P)
1 EM Bugler (C)
1 EM Basic-Driver (C)

### SUPPLY SECTION

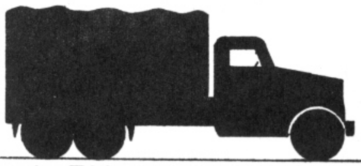

3/4t. Wpns. Car.

1 S/Sgt. Bn.Supply Sergeant (P)
1 EM Supply Clerk (C)
1 EM Gas & Oil Clerk (C)
1 EM Driver (C)



1 Capt. Bn. Supply Officer (P)
1 T/Sgt. Bn. Supply Sgt. (P)
1 Sgt. Ammo Sgt. (C)
1 EM Radio Operator (C)
1 EM Driver (C)

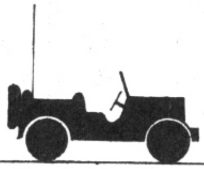
### RADIO REPAIR SECTION



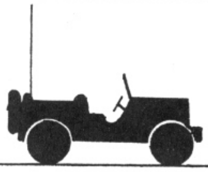
1 EM Radio Mechanic (C)
1 EM Radio Mechanic-Driver (C)

### TRANSPORTATION PLATOON

#### HEADQUARTERS

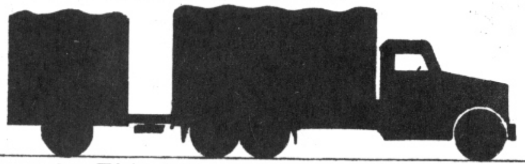


1 Sgt. Asst. Truckmaster (C)
1 EM Driver (C)



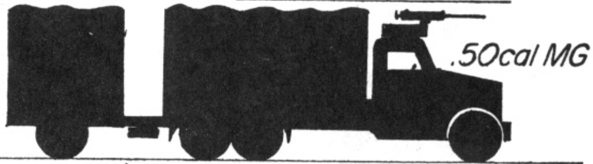
1 Lieut. Platoon Leader (P)
1 S/Sgt. Truckmaster (P)
1 EM Driver (C)

### GAS & OIL SECTION

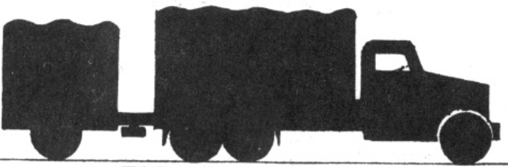


2 EM Basics (C)
1 EM Driver (C)

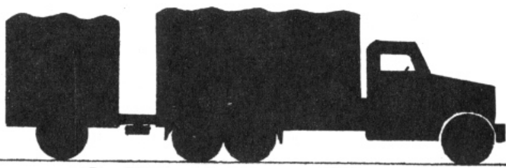
### KITCHEN SECTION



1 S/Sgt. Mess Steward (P)
3 EM Cooks (C)
2 EM Kitchen Police (C)
1 EM Driver (C)
(See Note 2)



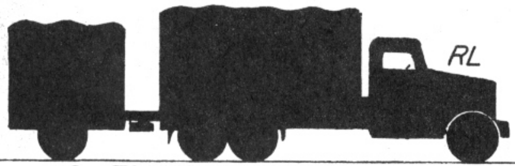
1 EM Basic (C)
1 EM Driver (C)



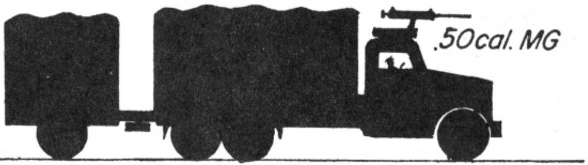
2 EM Basics (C)
1 EM Driver (C)

— Continued on next page —

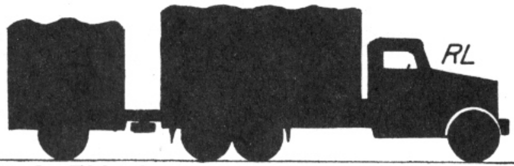
## AMMUNITION SECTION



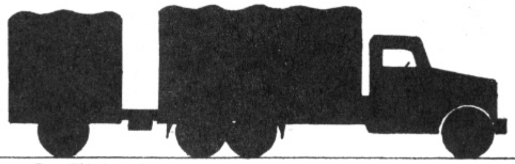
2 EM Ammunition Bearer (C)
1 EM Driver (C)



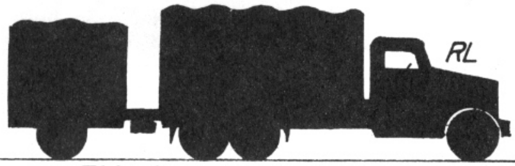
2 EM Ammunition Bearer (C)
1 EM Driver (C)



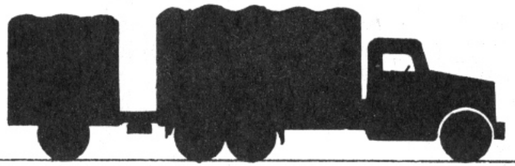
2 EM Ammunition Bearers (C)
1 EM Driver (C)



2 EM Ammunition Bearers (C)
1 EM Driver (C)

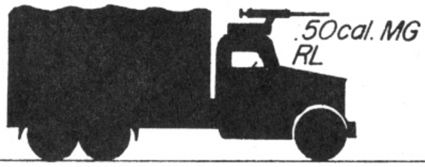


1 EM Ammunition Bearer (C)
1 EM Driver (C)



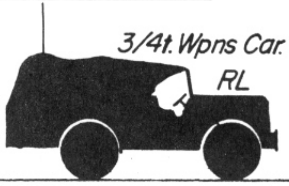
2 EM Ammunition Bearers (C)
1 EM Driver (C)

## MOTOR MAINTENANCE PLATOON

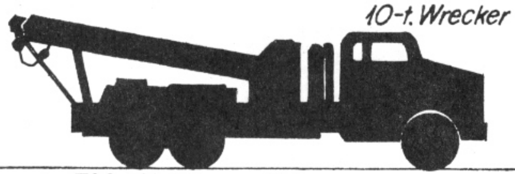


1 Sgt. Crew Chief (C)
5 EM Mechanics (C)
1 EM Mechanic-Driver (C)

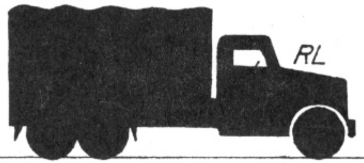
(See Note 3.)



1 Lieut. Platoon Leader (P)
1 M/Sgt. Motor Sergeant (P)
1 S/Sgt. Inspector (P)
1 EM Radio Operator (C)
1 EM Inspector (C)
1 EM Supply Clerk (C)
1 EM Driver (C)

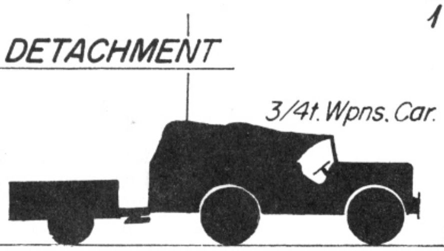


1 EM Welder (C)
1 EM Mechanic-Driver (C)



1 Sgt. Crew Chief (C)
3 EM Mechanics (C)
1 EM Motorcycle Mechanic (C)
1 EM Mechanic-Driver (C)

## MEDICAL DETACHMENT

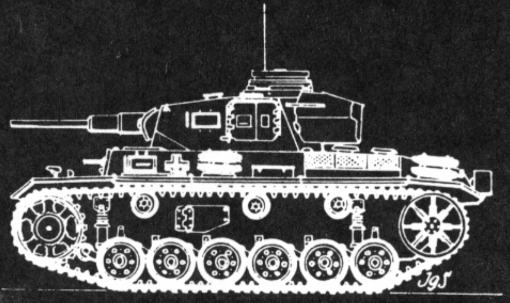

3/4t. Wpns. Car.

1 Capt. Bn. Surgeon
1 Lieut. Asst. Surgeon
1 S/Sgt. Detachment Sgt.
1 Cpl. Medical Asst.

1 EM Medical Technician
1 EM Surgical Technician
1 EM Dental Technician-Driver
(See Note 4.)

**Notes for this organization chart are provided on Page 47**

# ARMOR MODELS IN REVIEW



## Tamiya's **West German Flakpanzer 'Gepard' Anti-aircraft Tank** in 1:35th Scale...

Reviewed by Duane Thomas

One of the latest West German vehicles to be produced is an Anti-aircraft Tank based on the chassis and suspension of the **'Leopard'** Main Battle Tank. This vehicle was designed as one component of an air defense system (the other part is the **'Roland'** AA Guided Missile vehicle) which will protect armored and mechanized units from low and medium level air attacks. The **'Gepard'** (as this new AA Tank is named) mounts a rather high turret on the **Leopard** chassis; this turret mounts two radar sets (one target aquisition and one tracking system) and twin 35mm guns. With automatic radar acquisition and tracking, and automatic weapons, this system is quite complex and, assuming that all systems function well, should give the **Bundeswehr** much needed protection against Mach 2 air opposition.

Tamiya's new model of the **'Gepard' Flakpanzer** is an accurate depiction of the real vehicle. It is cleanly molded in an olive drab plastic which closely duplicates the coloration of a new **Bundeswehr** vehicle. As near as we can determine from the small **Bundeswehr** drawings we were provided, the Tamiya model is quite close to the real vehicle in both scale and detailing. In fact, it looks as though Tamiya worked from the same sources that we have. Decals are provided to mark two different vehicles (one from a 2nd, and one from a 4th Company of an AA Battalion), and the kit contains one standing figure (dressed in typical coveralls and beret) which provides a nice scale comparison to the vehicle. The driver's compartment hatch may be positioned in the open position (revealing the completely bare interior of the model), as can the commander's hatch in the turret cupola. One nice feature is that the rear target acquisition radar can be positioned in the open configuration, exposing the 'black boxes' on the inside for 'maintenance'. All tools and side stowage are separate, allowing a modeler to impart quite a bit of variety to his model. Tracks are the usual Tamiya silver-gray flexible plastic, and track detail is Tamiya's usual high standard, needing only light highlighting to achieve total realism. Construction is fairly simple, calling for skill only in the construction of two 'stretched sprue' antennae. Fit was good except in two or three locations, but this is not excessive considering the complex shape of the turret and the gun housings. An extra feature in the kit is the inclusion of a square of small-mesh metal screening for the engine air intake grill; this adds much to the kit's realism.

This is an excellent kit which is difficult to fault. If you're into modern modeling and are interested in the **Bundeswehr,** this is one kit that you'll have to acquire. It's well worth the price...

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## Tamiya's **M5A1 American Light Tank** in 1:35th Scale...

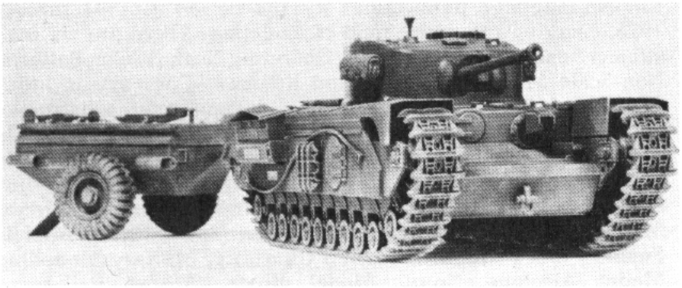
Reviewed by James Steuard

One armor model which has not been available in 1:35th scale is the late-war M5A1 Light Tank which was a common part of almost all armor units of the US Army from 1943 to 1945. While the M3 and M3A1 Stuarts are perhaps better known, they were not used to any great extent in combat when compared to the M5A1. Both vehicles used a common suspension (except as noted below), but the M5 series used different engines (which caused a redesign of the rear deck) and a much more streamlined hull (which actually first appeared on the M3A3). Automotively, the M5A1 was a success, having good speed and acceleration. However, the tank suffered badly from a lack of armor protection and firepower. By late 1944, almost all light tanks were being held back from actual combat, being used instead used for supply missions and evacuation of wounded.

Tamiya's model of the M5A1 Light Tank is very nicely molded in a olive drab plastic. The kit is complete with sand skirts (which were usually discarded on vehicles in the combat zone of action) and a hedgerow cutter (commonly used in France following the invasion in June 1944). A kneeling figure is provided, and this figure can be displayed manning the external turret .30 caliber machine gun. (See the front cover photo of AFV-G2, Volume 5, Number 1). External stowage is fairly complete (although missing the short sections of track normally stowed on the angled rear corners of the hull), and pieces are separate for added realism. No tow cables are provided, so these will have to be scratch built. Both front hull hatches may be cemented in the open position, and the hatches are provided with the periscope blocks on the inside. No interior detail is provided, although it shouldn't be too much trouble to install prior to cementing the glacis plate (part C15) in position. Decals are provided for two different vehicles, but these are not complete, and I would suggest referring to photographs before completing your markings scheme. (We'll provide markings in a future article.)

On the positive side, Tamiya's kit assembles easily and well, with good fit on the parts in our sample kit. However, the are two errors in the kit which should be corrected if you are modeling for accuracy. First, Tamiya copied the suspension of their earlier M3 'Stuart', apparently not realizing that a major change was made when the M5 series was initiated. Apparently, the M3 trailing idler mount was not strong enough, and a different mount was fitted to all M5 and M5A1 light tanks (at least, it appears on the several hundred M5A1 photos I've looked at). Therefore, this idler mount must be modified (or scratchbuilt) to make the suspension accurate. It appears possible to use the kit's parts (B3 and B4) as a basis for the larger mount on the M5A1. The other error concerns the external machine gun mount on the left side of the turret. Tamiya provides the very-late external armor gun mount for the external .30 caliber weapon. This mount only appeared on very late M5A1's, produced in 1945. Therefore, if you're modeling the M5A1 in a 1944 setting (such as would be using the hedgerow cutter), this mount will have to be changed. It's not difficult... eliminate parts C32 and C39 and scrape off the angled 'guide' on the turret side. Fill in the mounting holes with putty, and then construct an external pedestal with stretched sprue. Fit the machine gun to the top and the task is done.

In spite of the above errors, the Tamiya M5A1 is a welcome addition to their modeling range. With a little work, you can turn out an accurate depiction of the standard US Army light tank...



### Tamiya's **British Churchill Crocodile Flamethrower Tank** in 1:35th Scale...

Reviewed by Gary Simpson

Tamiya has just released a superb model of the well-known British Churchill Crocodile Flamethrower Tank. This is refreshing for several reasons... First, there has long been a need for an accurate model of the Churchill Infantry Tank, and secondly, the specialized nature of a flamethrowing tank makes Tamiya's new model doubly interesting. The Tamiya kit depicts a Churchill Mark VII., a late-war variant which was the version chosen for the flamethrower conversion. The Churchill Crocodile was employed by sub-units of the famous 79th Armoured Division, appropriately described as one of their 'Funnies'. The Churchill Croc was armed with a 75mm gun and a coaxial machine gun in the turret, plus a flamethrower mounted in the hull. The kit includes a separate hull machine gun, so that the kit can be converted into a standard Churchill Infantry Tank.

The Tamiya Churchill Crocodile contains some 220 parts, fitting together very well with little or no flash. The separate Fuel Trailer is fully articulated, and is a gem of a model on its own. The kit tracks are superb and are the best that I have seen for some time... including beautiful detail on the inside of the track! All hatches are optional in that they may be positioned open or closed, and the hatches are highly detailed. While the kit suspension is excellent, the springs and road wheel support arms are cast in one piece... this, of course, prohibits modeling a working suspension. It would have taken little extra effort to mold separate pieces, and the result would have been greater realism. In regard to scale, the kit seems to be a little large, scaling out as closer to 1:32nd scale than 1:35th... I noticed the same slight over-scaling on Tamiya's Quad Gun Tractor and Universal Carrier, so possibly this is deliberate... It is not too noticeable in a Churchill, as this is one vehicle which always seems bigger in real life.

This kit can be highly recommended, as conversion possibilities are almost unlimited. For example, the majority of 79th Armoured Division 'Funnies' were created on the Churchill Mark III. or Mark IV., and the kit can very easily be converted to these earlier models by making some rear deck modifications, discarding the round side hatches (part C9), and changing the driver's and hull gunner's front plate (part C30). The Churchill served in many specialized roles, and these are all good modeling possibilities now that such an excellent Churchill model kit is now available.

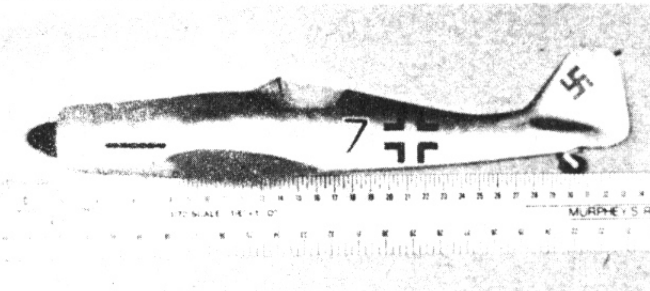
### Murphy Model Products' **Murphy's Rule I. and II. Scale Rulers,** in 1:72nd, 1:48th, 1:35th and 1:32nd Scales...

Reviewed by James Steuard

One of the least appreciated but most useful modeling tools is an accurate scale ruler. While the average kit builder will probably ask why it's so useful, I am sure that any conversion fan or scratchbuilder will agree with my statement, and will immediately ask where they can acquire such a scale ruler... Well, all I can say is that the best scale ruler I've seen is the product reviewed right here.

Murphy's Rules are available in two forms, each covering two different scales. First, there's Murphy's Rule I. which provides accurate scale dimensions in 1:72nd and 1:48th scale. Then, there's Murphy's Rule II. which permits scale measurements in 1:35th and 1:32nd scales. Both of these rules are made from .032-inch aluminum and are available in two styles: natural metal with black lines, numbers and gradients, and black finish with the lines, numbers and gradients in natural. Both are attractive and very durable... the manufacturer informs us that the markings are actually sealed below the surface of the aluminum. The metal must be worn away before the photographic image (the lines, etc.) can be touched or harmed. Incidently, the finish on these rules cannot be harmed by any of the common modeling solvents, including mineral spirits, lacquer thinner, methyl ethyl ketone (MEK), or xylene.

What can you use these scale rulers for? Well, how about checking the accuracy of that newly purchased scale model? How about verifying the scale of a particular set of drawings?



Another use is converting measurements form one set of drawings (say 1:32nd scale) to a second scale (like 1:35th scale)... and that's only the beginning...

Murphy's Rules are available in many hobby shops, or they may be purchased directly from the manufacturer, at the following address:

Murphy Model Products
P.O. Box 8181
Cincinnati, OH 45208

The scale rules are available for $2.50 each. Modelers in the US and Canada should add $.25 per order for postage and packing when ordering direct. Overseas modelers should include the equivilent of $1.00 extra, for the manufacturer only ships via First Class Airmail. Murphy's Rules are an excellent modeling tool and I only wish I had bought a set of these years ago.

**The Baron's Bookshelf [Continued from Page 23]**

The section covering uniforms and insignia is also excellent, although not as useful as the other areas of the publication. While the uniforms and insignia are well illustrated, all pictures are in black-and-white, and there is no information on the various colors of uniforms and insignia. Thus, the material is of limited usefulness to miniature fans.

If you are hunting for that one basic publication which provides information on all aspects of Warsaw Pact military equipment, this one comes closest to filling that requirement. All information is accurate and quite comprehensive, especially considering the scope of the publication and the amount of information crammed into one small book. This soft cover publication can be recommended to both serious students of military affairs, as well as to those looking only for interesting reading on our military foes. The book is available from Articles of War, Ltd. in Chicago; this firm is the North American distributor for the publication. In addition to the Wiener book, they offer an excellent line of military books at reasonable prices, and their mail order service is both quick and reliable.

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Book Review: **Focus on Armour Camouflage & Markings No. 1: Germany, North Africa,** by Kenneth M. Jones (The Squadron Shop, Inc., 28107 John R., Madison Heights, MI 48071, $3.50)

Reviewed by James Steuard

This new publication on armor color and markings is a part of a new Almark Publications series, and is distributed in North America by the Squadron Shop. It is a soft cover booklet of 38 pages, and includes numerous line drawings, good quality photographs and six pages of colored illustrations showing vehicular markings. The subject of German vehicles in North Africa is one of the more popular choices for modelers, and we understand that it will be followed by other volumes covering British and American armor in North Africa. This new book features an excellent mix between photos, drawings and text, although there should be more of the latter. A good many of the photos have been seen before, as its getting hard to find unpublished desert photos; however, the captions are good and the pictures have been carefully chosen to impart good markings information. Vehicular color schemes are provided in both colored and line drawings, and information is provided for 22 different vehicles in drawings alone. Lots of small drawings show vehicle details, such as tire pressure markings, Notek light systems, pennants, tectical markings, etc. Although a few small errors have crept into the markings information, the accurate and useful information far outweighs the bad... This is an excellent and inexpensive publication that will be helpful to almost every modeler interested in the German forces in North Africa.

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Book Review: **Index of Model Periodicals, 1971 through 1975,** by Paul Cardwell Jr. (Scarecrow Press, Inc., P. O. Box 656, Metuchen, NJ 08840, $27.50)

Reviewed by Duane Thomas

There are approximately 100 modeling magazines published in the English language on a semi-monthly to quarterly basis. This makes modeling perhaps the most published of all hobbies. Yet, there has been no comprehensive index for researchers in this field.

Paul Cardwell has begun to fill that gap with his **Index to Model Periodicals.** The first volume in a series, it indexes 25 English-language publications for the period of 1971 through 1975, covering the entire field of modeling. There are six main subject headings: Static Scale, Operating Scale, Color Patterns, Non-Scale Models, Articles, and Reviews. Coverage includes: Scale drawings, color schemes, design and construction techniques, control and power systems, historical backgrounds, reviews of kits, books, tools and other productions, etc. The magazines indexed are: **AFV-G2, Aeromodeller, Air Enthusiast/Air International, Airfix Magazine, American Aircraft Modeler, Armies & Weapons, Aviation News, Flying Models, Fusilier, IMPS Magazine, IMPS Quarterly, Military Modelling, Model Airplane News, Model Boats, Model Railroader, Modelworld, NMRA Bulletin, Narrow Gauge & Short Line Gazette, PAM (Plastic Aircraft Modeler) News, RC Sportsman, Radio Control Modeler, Railroad Model Craftsman, Random Thoughts, Replica in Scale, Scale Models, Swords & Lance,** and **World War 2 Journal.**

Many of our readers will recognize Paul Cardwell as he writes for a number of modeling magazines. This new publication, although expensive, will solve many modeling research problems, for it lists every subject covered by these 25 magazines. The time saved by using this research tool more than pays for the book... almost everyone of us has poured hours down the drain, scanning through magazines in an attempt to find that article, those drawings or that elusive color scheme. This publication is a first class effort to save all that wasted time, and better yet, it puts all kinds of modeling information right at ones fingertips.... I only wish I had this book years ago...

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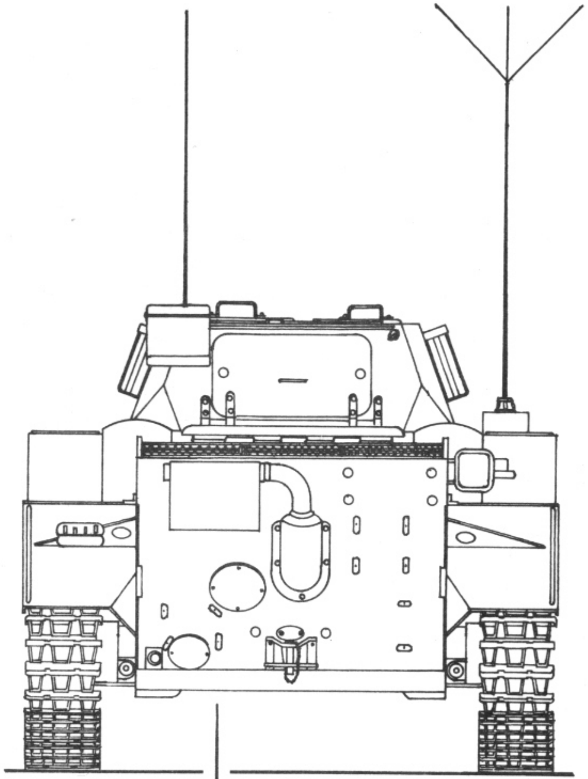
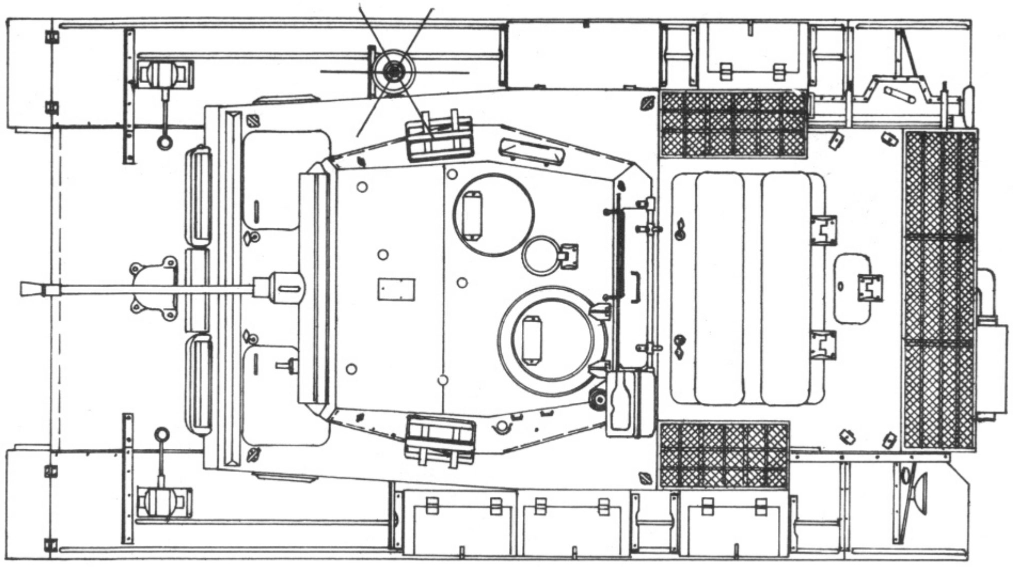
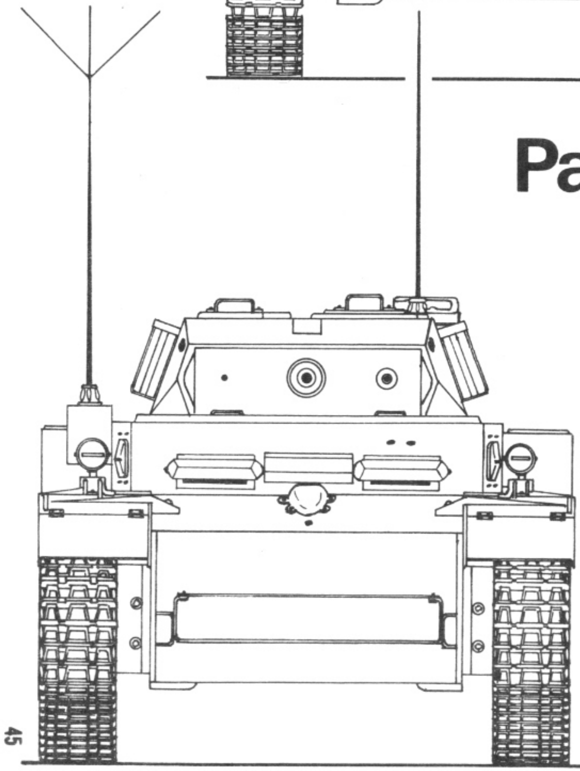
**ANNOUNCEMENT:** Plans are now being formulated to visit several representative European military museums specializing in World War II. and post-war weaponry. Tentative preparations call for visits to places of interest in Luxembourg, Belgium, West Germany, East Germany, Czechoslovakia and France. This trip will take place beginning on or about June 15, 1978 and will last approximately 3 weeks. Since every effort will be made to provide personal attention for the participants, the number of travelers will be limited. For further information, contact: Donald C. Briggs, 400 S. W. 71st Terrace, Pembroke Pines, Florida 33023

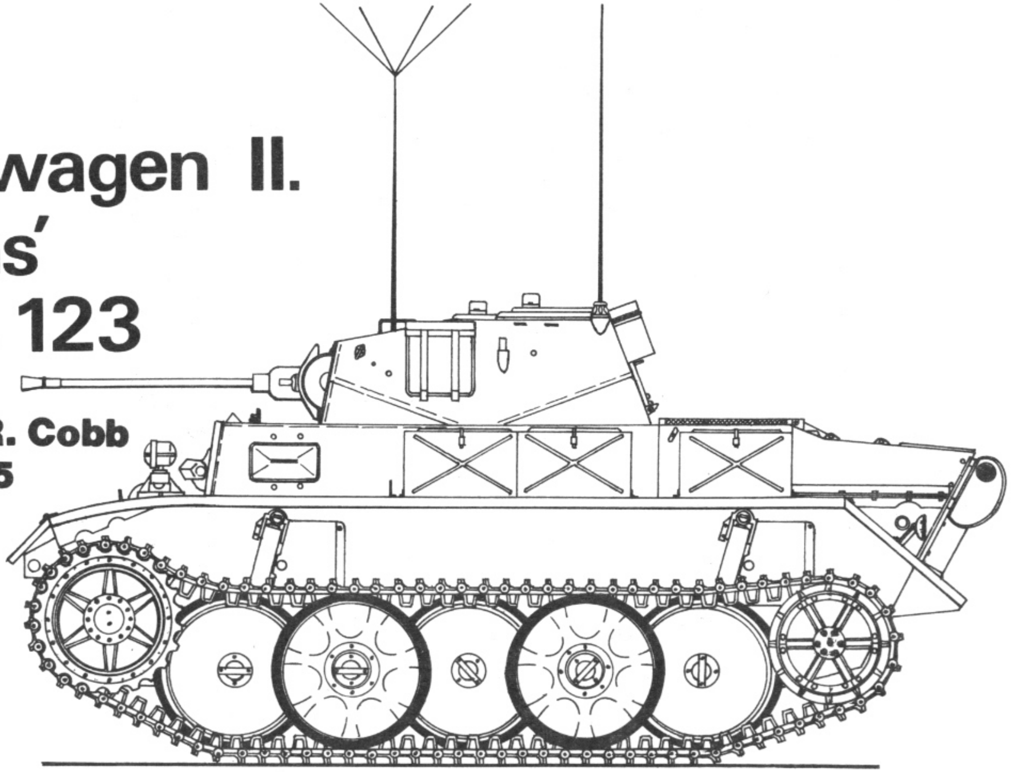




# Panzerspähwagen II.
# ‚Luchs'
# Sd. Kfz. 123

**Drawn by S. R. Cobb**
**Scale: 1/35**





# Armor in the News

## THE GREAT NATO TANK-GUN CONTROVERSY

### BY PHIL BARKER

When the competitive trials between American, German and British tank gun systems were held in Britain in Spring of 1975, few can have expected in advance just how much controversy would follow, nor how much interesting information would become available to the armor enthusiast through calculated leaks and indiscretions.

The American contender was not in fact a new gun, but ammunition for the existing 105mm gun originally introduced in the Centurion and then exported for use in the M60 and Leopard. Two new rounds were available, the M735 fin stabilized sabot round with tungsten penetrator, and the XM774 which was similar but with a depleted uranium penetrator. These both made use of the slipping obturator band originally developed to allow fin stabilized HEAT rounds to be fired from a rifled weapon. The advantage of the M735 over the existing spin stabilized APDS round was that its penetrator could be longer and thinner, thereby stressing the target armor more. The XM774 had the additional advantages that its uranium penetrator was denser than tungsten, improving penetration still further, and that the uranium ignited with the friction of penetration, producing greater destruction behind the armor.

The new ammunition, however, also had its theoretical disadvantages. Previous fin stabilized rounds such as the French 90mm and the American 90mm and 105mm HEAT and the Soviet 115mm APFSDS and HEAT had shown greater dispersion than conventionally spun APDS, in particular being sensative to side winds. This meant that, in spite of their high initial velocities, these rounds were insufficiently accurate above 1500 meters range, although quite satisfactory up to that distance. The other disadvantage, applying only to the XM774, was that depleted uranium is a nasty poisonous material to handle, and in addition could be politically unacceptable.

The new rounds also had what might be termed invisible advantages. The guns to fire them were already in existance, together with a full range of supporting ammunition types such as HESH/HEP, HEAT, Smoke and Cannister. This may have been more apparent than true, as the design of some of the existing ammunition was a little dated. For example, American manufactured 105mm HEP is very inaccurate compared with the Chieftain's later developed 120mm HESH. There was also the point that such ammunitions are caliber sensative. For example, 105mm HEAT is no longer generally regarded as sufficient in caliber to both penetrate really heavy armor and produce adequate effect behind it. Even the French who have used HEAT exclusively of all other anti-tank ammunition are now moving to a larger caliber. Similarily, where 105mm HEP often produces only a firepower or mobility kill by destroying external equipment, 120mm HESH blows the target apart.

The West German contender was a 120mm smoothbore gun firing APFSDS with a tungsten penetrator and a fin stabilized HEAT round. It had no HE, HESH/HEP, Smoke or Cannister round. However, the anti-personnel blast and fragmentation of its HEAT round was equivilent to that from 105mm HEP. The German Army did not consider that it needed other ammunition types, but saw no reason why they would not be developed. Unkind rivals immediately pointed out that this was not quite the same as taking them from stock.

The British did not have a proper contender, being at the time quite satisfied with the performance of the Chieftain and its 120mm gun firing conventional spun APDS and HESH, together with a full range of supporting ammunition. However, they had available the so-called 'export' 110mm gun used to develop new technology and suitable to replace the earlier 105mm gun in existing installations. It could therefore have been mounted in Leopard 2 or the XM1 if required, whereas the Chieftain's 120mm gun could not be so fitted. The 110mm gun was therefore entered in the competition with its standard spun APDS, although a fin stabilized APFSDS using an American style slipping obturator band (which was in an earlier stage of development) was demonstrated in addition.

As far as can be gathered from the various leaks, the results were that the British 110mm APDS penetrated about as well as the current British 120mm APDS, which in turn is much better than conventional spun 105mm APDS. The M735 105mm APFSDS did better still, but could not quite match the penetration of the German 120mm APFSDS, although the XM774 may have done so. The German round showed excessive dispersion, the 110mm bettered the Chieftain accuracy, and to most people's surprise, the M735 turned out to be the most accurate. The observers from the three armies agreed that the M735 had won. This was not politically acceptable to the German defense ministry, and they refused to accept the results. The war of words was now on...

It is fair to say, however, that if the tests had demonstrated the current superiority of the M735, they had also demonstrated that there was also a lot that could be done to improve performance further. The British went away, scrapped the 110mm gun, designed a new 120mm gun using the 110mm technology, and unwrapped a complete new range of ammunition suitable for both the new gun and the existing 120mm. This included APFSDS, spun APDS, HEAT, HESH, Smoke and Cannister. These were unveiled at the British Army Equipment Exhibition in June of 1976, together with the new 'Chobham' armor, details of which had previously been passed to the American and German governments so that it could be used in the XM1 and Leopard 2AV. The armor is still secret, but it is speculated to be a cellular honey-comb incorporating steel, aluminum, ceramics and plastics. It is claimed to provide much more protection against all kinds of attack than the equivilent weight of steel. Incidently, the secret was not

Continued on Page 48

## Color 'n Camouflage: Soviet T34/85's [Continued from Page 32]

*Tank Brigade*. To the right of the Russian letter within the diamond appeares a small, sub-script number, which indicated the Battalion within the particular Brigade to which the tank was assigned. In this system, a small '1' indicated the 1st Battalion, a small '2' designated the 2nd Battalion, and a small '3' identified the 3rd Battalion of the Brigade.

T34/85 tanks of the *23rd Tank Corps* also carried individual tank numbers, and these consisted of two digits painted in 20cm high characters on the turret sides to the rear of the diamond tactical symbol described above. The two digit numbers simply identified the individual tank within its Battalion; the number '03', for example, indicated the third tank of its Battalion. These numbers were also painted in red.

It appears that, while the T34/85 medium tank was a potent opponent vehicle, in the hands of green or new tank units, it could easily be handled by the more experienced German tankers in their *Panzer IV.*'s and *Panthers*. From the German records, it would appear that the *23rd Tank Corps* was almost totally destroyed. While it is not clear which German unit was involved in the fighting near Seregelyes and Borgond, the fighting must have been fierce and costly to both sides.

## Polish Armor Force in 1939 [Continued from Page 11]

G.O. — Operation Group
kcl — *kompanja czolgow lekkich* (Light Tank Company)
pp — *pociag pancerny* (Armored Train)
O.W. — Operational Unit
sk — *samodzielna kompania czolgow rozpoznawczych* (Independent Scout Tank Company)
WBP-M — Warsaw Mechanized Brigade
* — Tankette unit partially equipped with upgunned 20m heavy machine gun command tanks)

During the course of the September Campaign, a number of improvised armored units were formed. During the defense of Warsaw, an improvised company of light tanks commanded by Captain S. Grabczewski was formed from seven *7TP* training tanks of the *3 BP* and eleven brand-new uparmored *7TP jw wz. 1939*, which were earmarked for the *10 BK* and were picked up directly at the *PZ Inz* factory outside of Warsaw. A further company was formed under the command of Captain F. Michalowski from eleven *7TP dw* training tanks belonging to the *CWBP* in Warsaw. The platoon of three R-35's under Lieutenant J. Jakubowski were the only ones to see action as the 21st Light Tank Battalion had the dubious distinction of being the only Polish tank unit in 1939 not to see any combat due to a variety of unavoidable circumstances. Two improvised armored trains were built during the defense of Warsaw, and another one, named the *'Kashub Dragon'*, served with the Seacoast Defense Command.

## US Army Tank Destroyer Headquarters Company [Continued from Page 41]

The following notes apply to the organization chart drawings on pages 39-41...

Note 1. In combat situations, this section usually also contained the Clerks from the 'line' companies. In addition, the section usually contained one (1) Medic from the Medical Detachment.

Note 2. In combat situations, the 'line' companies usually had their Kitchen Sections move with the Headquarters Company, joining their respective companies when night fell.

Note 3. The small Maintenance Group shown as a part of the Command Echelon was normally a part of the Maintenance Platoon, however, the TD School advocated the attachment of this Group to the Command Echelon instead of remaining with its Platoon. The 'line' company Maintenance Sections often traveled with the Headquarters Company.

Note 4. The 'line' companies were each furnished with one ¼-ton truck carrying a Medic and a Basic/Driver. These are not shown in the Charts since they were normally with their respective companies. Thses men and vehicles were in addition to the six (6) Aidmen organic in each company.

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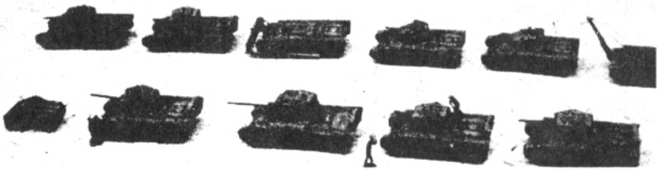

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Card 107. **Sherman I., III.** (1942 models) and **M-7 HMC 'Priest'** (early model).
Card 108. **Sherman IB., IVB.** (105mm howitzer close support version( and **M-7 HMC** (Late Type).

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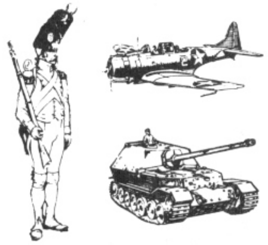

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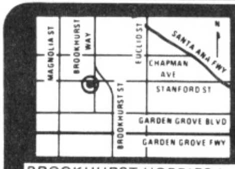

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## AFV-G2 Feedback Results
## Volume 6, Number 1

| | |
|---|---|
| Muzzle Blast | 5.77 |
| US Army Veh. Designations | 5.24 |
| History of 6th R.T.R. | 6.32 |
| Armor Models in Review | 6.10 |
| Marking British Vehicles | 6.49 |
| Wheels: 1¼-ton Truck | 5.05 |
| Soviet ASU-57 SP Gun | 6.90 |
| Char B Mine Roller | 6.31 |
| Armor in Pictures | 7.13 |
| German Panther Story | 7.34 |
| Color 'n Camouflage: Leopards | 7.36 |
| Modeling a Crusader I. | 5.99 |
| US Army Combat Sup. Co. | 5.71 |
| Issue Overall | 6.84 |

## Armor in the News: The Great NATO Tank-Gun Controversy [Continued from Page 46]

sold, but was provided free, causing a storm in the British patriotic press. (Latest press releases indicate that the 'secret' has been passed to the Soviets by a spy in West Germany...Ed.)

The next news to emerge was that an agreement had been reached between the American and German governments, that although the XM1 would initially go into service with a 105mm gun, this would be replaced with the German 120mm smoothbore later in production if the threat warranted it. As may be guessed, this did not go down too well with the British! A new interpretation was hurriedly placed on the agreement, and another series of tests were ordered.

These new tests took place in the United States at the end of 1976, and have led to further German complaints. The new British 120mm gun was not ready (it is now), and so the British entry was the older Chieftain gun, which unlike the new weapon, is not suitable for fitting in the XM1. However, it was firing the new ammunition. Worse, the targets provided included one with Chobham armor. Worse still, the XM774 round had been redesigned to include a slimmed penetrator, and a similar penetrator was used by the British APFSDS round. While the Germans had a similar round in development, they had not brought it along to the tests, and the Germans fielded the same round used in the previous competition.

The test results showed that the Chieftain gun firing APFSDS did slightly better than the German gun against Chobham armor, but about the same against conventional armor. The XM774 with its new slim penetrator came between the two in each instance. The M735 came in a bad fourth, doing especially bad against the special armor.

We can now confidently look forward to yet another series of tests, with the new British 120mm facing similar slim penetrator versions of the XM774 and the German APFSDS. The results are still anyone's guess, but I would put my money on the British weapon, for the following reasons. Firstly, it seems that the 120mm caliber is going to be needed to defeat special armor, so that 105mm will no longer be adequate from the moment that the T72's successor appears. Secondly, firing fin stabilized rounds from rifled guns seems to improve accuracy. The slipping obturator does not quite eliminate spin, which instead decays slowly after the projectile leaves the muzzle. It is interesting to note that the Soviet T62 APFSDS has been modified by boring angular holes through the sabot to provide initial rotation by gas pressure, while the T72 is said to have a rifled initial section of its barrel, followed by a final smoothbore section. Thirdly, the extra flexibility provided by a larger range of ammunition seems popular with all but the Germans. In particular, while Chobham armor can stand repeated attack with HEAT, successive hits with large caliber HESH can degrade it.

However, what will clearly NOT emerge is a standard NATO tank gun. The West Germans are going ahead with installation of the 120mm smoothbore gun in the Leopard 2, and the French have a similar weapon firing interchangeable ammunition planned for an upgunned A.M.X.30. The XM1 will initially have the 105mm gun, and will convert to the larger weapon when necessary. The British have a 120mm gun already, and will certainly not refit with a smaller weapon. This confusion should not imply that the trials have been useless. They have improved the performance of all of the contenders and have imposed a much worse problem on potential enemies.

## Muzzle Blast [Continued from Page 4]

new tank designs for some time and more details about it are sure to be eagerly awaited.

Yours,

D.W. Thorpe
Burnaby, B.C., Canada

*(Editor's Comments) To date, only one photograph of the Israeli* Chariot *has been released, and this photo has appeared in numerous journals. Because of the wide exposure of this picture,* AFV-G2 *chose not to publish the photo. However, an in-depth article on the* Chariot *is in preparation and is scheduled for appearance in the near future...*

### ...AND ON SOVIET MEDIUM TANKS.

Dear Sir:

I am writing this to clear up some confusion on recent Soviet tanks. There are three basic vehicles, the T64, M1970 and the T72.

The T64 is in use by some units. This vehicle uses a T62 hull and a new type of turret similar to the one used on the T10. A picture of the vehicle can be found in *International Defense Review*, Vol. 10, No. 3, page 431.

The M1970 is a test vehicle. It was basically a T64 turret and a new hull, the one used on the T72. There were several modifications to the vehicle for testing. A picture of this vehicle can be found in *AFV-G2*, Vol. 4, No. 5, page 23.

The T72 is a production vehicle. It uses the hull from the M1970 and a new turret. A picture of this vehicle can be found in *Armor Magazine*, January-February 1977, page 45.

As far as the main gun goes, it still is not known if these tanks mount the U5T5 115mm gun or a new 125mm gun. I hope this letter clears up some of the mystery about recent Soviet tanks.

SGT Christopher F. Schneider
Armor Co. C, USACDEC
Fort Hunter Liggett, Jolon, CA 93928

# AFV~G2 FEEDBACK

## VOLUME 6, NUMBER 2

Would you please assist us at **AFV-G2** in determining your interests and preferences in articles? Please answer the following questions, printing your answers on the 'feedback' card stapled into the magazine. After filling in the answers, please detach the feedback card from the subscrption application (unless you're going to use the subscription card), and mail it to us. Your answers will be tabulated and the responses used to formulate future articles in **AFV-G2**. We value your opinion and we appreciate the time you took to fill out the feedback card.

On questions calling for a '1' to '9' rating, please use the following as a guide: 9 = Excellent. I would buy the magazine for this one article alone; 8 = Outstanding. A major feature of this issue, one of the best articles; 7 = Great. Of significant interest or value, much above average; 6 = Good. A solid article of real interest, better than average; 5 = Interesting. An average article, it kept my interest; 4 = Fair. Of general interest, but below average in some respects; 3 = Mediocre. Of no particular interest but 'nice to know'; 2 = Poor. A dull subject, badly presented; 1 = Wasted Space. Self explanatory; 0 = No opinion, don't count my vote on this item.

**Rate your interest of the articles in this issue on a scale of '1' to '9', using the scale above:**

1. Muzzle Blast
2. The Organization & Disposition of the Polish Armor Force in 1939
3. Floater 5', DD Tanks at Normandy
4. Soviet T72 Medium Tank Scale Drawings in 1:32nd Scale
5. Marking British Vehicles, Part 6, 'Jeeps'
6. The Baron's Bookshelf
7. The German Panzerspähwagen II. 'Luchs'
8. Centerspread Drawings: Panzerspähwagen II. in 1:24th Scale
9. Armor in Pictures
10. Color 'n Camouflage: Soviet T34/85's in Hungary
11. A Guide to US Army Vehicle Designations, Part 2
12. Building a 1:285th Scale Armor Diorama
13. The US Army Tank Destroyer Headquarters & Headquarters Company, 1944
14. Armor Models in Review
15. German Panzerspähwagen II. 'Luchs' 1:35th Scale Drawings
16. Armor in the News: The Great NATO Tank-Gun Controversy
17. **Using the 1-9 scale, how would you rate this issue overall?**

**Fields of interest. Please rate your interest in the following areas on a scale from 1 to 9**

18. Military History in General
19. Small Unit HIstories and Personal Narratives
20. Military Organization Data & Charts
21. Current Military Affairs
22. Vehicle Data (Technical)
23. Vehicle Data (Camouflage & Markings)
24. Military Vehicles, Modern: 1950 to Present
25. Military Vehicles, World War II: 1935 to 1950
26. Military Vehicles, Early: Pre-1935
27. Military Vehicle Modeling
28. Wargaming (Board & Miniature)

**Optional Questions: Rate the following proposed articles per your interest in the subject. Please use a scale of '1' to '9'.**

29. **US Army Tank Gunnery, 1935-50...** A look at the basic methods of gunnery, as well as the weaponry and optical sights used in World War II.
30. **Color 'n Camouflage: US Army Helicopters in Vietnam...** An exploration by a former helicopter crewmember of the markings and color schemes used in Vietnam.
31. **Post War View: The 1973 Arab-Israeli War...** A photo story showing equipment in the Sinai in 1974 and 1975. Covers colors and markings in caption form.
32. **A Consumer's Guide to US Army Tank Ammunition:** A series devoted to ammunition by caliber, providing description, markings, and penetration figures.
33. **How long have you been a subscriber/regular reader of AFV-G2?** 0 = First issue; 1 = One Year; 2 = Two Years; 3 = Three Years; 4 = Four Years; 5 = Five Years; 6 = Six Years.
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35. **What is your age?** 1 = Under 15; 2 = 16 to 21; 3 = 22 to 30; 4 = 31 to 35; 5 = 36 to 40; 6 = 41 to 50; 7 = Over 50
36. **What is your primary occupation?** 1 = Student; 2 = Active Military Service; 3 = Defense Related Industry; 4 = Academic; 5 = Retired Military; 6 = Other

**In the Remarks Column, please list the last three armor models you have built. Please provide names of companies, names of models, and scales. Thank you for your help and cooperation in answering the above questions...**

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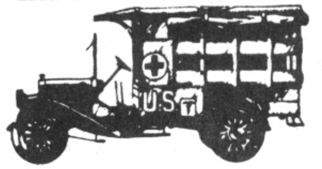

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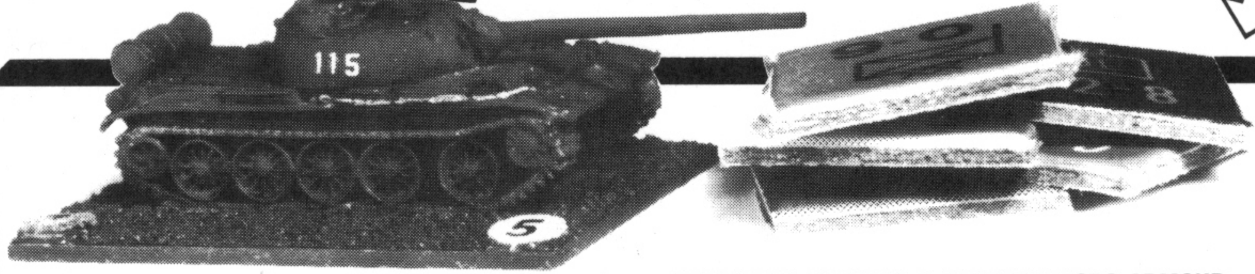

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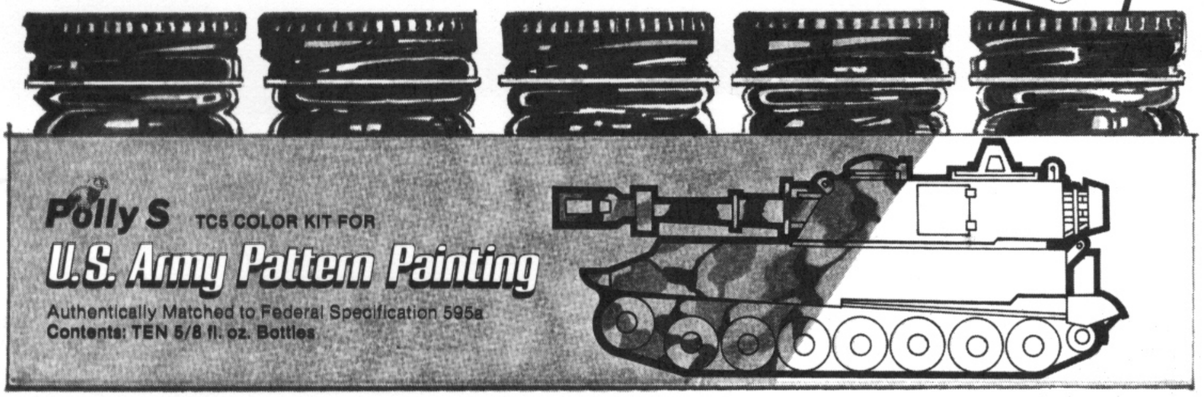
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